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CANADA'S CENTURY.

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***“The Nineteenth Century was the Century of
the United States; the Twentieth Century will
be Canada’s Century.”—SIR WILFRID LAURIER.***

CANADA'S CENTURY:

PROGRESS AND RESOURCES OF THE GREAT DOMINION.

NOTES, WITH SNAPSHOTS AND OTHER ILLUSTRATIONS
OF AN EXTENSIVE TOUR IN BRITISH
NORTH AMERICA.

By R. J. BARRETT, F.R.G.S.,

EDITOR OF THE "FINANCIER AND BULLIONIST,"

Author of "Handbook of Canadian Securities," Co-Editor of "Anglo-African Who's Who," &c., &c.

(With an Introduction by the Right Hon.

LORD STRATHCONA AND MOUNT ROYAL, G.C.M.G., &c.).

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THE AUTHOR'S PREFACE.

“CANADA'S CENTURY” is the product of my extensive tour of the Dominion in the autumn of 1906, supplemented by later statistical and other particulars.

It is primarily intended for the information of the British public, but I trust it may also find appreciation in Canada. The great interest manifested by Canada's representative men in the preparation of the book, and in the prior publication of the articles it embodies in *The Financier and Bullionist*, warrants the hope that “CANADA'S CENTURY” may be approved by them as an impartial record of observation.

Grateful acknowledgment must be made of the kindness I met with everywhere in the Dominion, the many courtesies extended to me, and the facilities for the collection of reliable data with which I was favoured.

Much appreciated assistance has been rendered by members of *The Financier and Bullionist* editorial staff, and by the Cusack Institute, of London, where the illustrative diagrams were prepared.

The pictorial blocks include reproductions from photographic snapshots taken by myself. I trust they may serve to give British readers an inkling of the Dominion's scenic grandeurs, its fertile prairies, and its great industrial activities.

I shall be greatly obliged if any inaccuracies in matters of fact or figures, which may have inadvertently crept into the book, are indicated by readers, so that their correction may be effected for any subsequent edition.

Lest it should be imagined that I am over-optimistic concerning Canada's boundless resources, magnificent opportunities and splendid future, I hasten to assert that whoever visits the Dominion and sees the country for himself, as I did, must certainly be convinced that I have not exaggerated in a single particular.

R. J. BARRETT.

LONDON: June, 1907.

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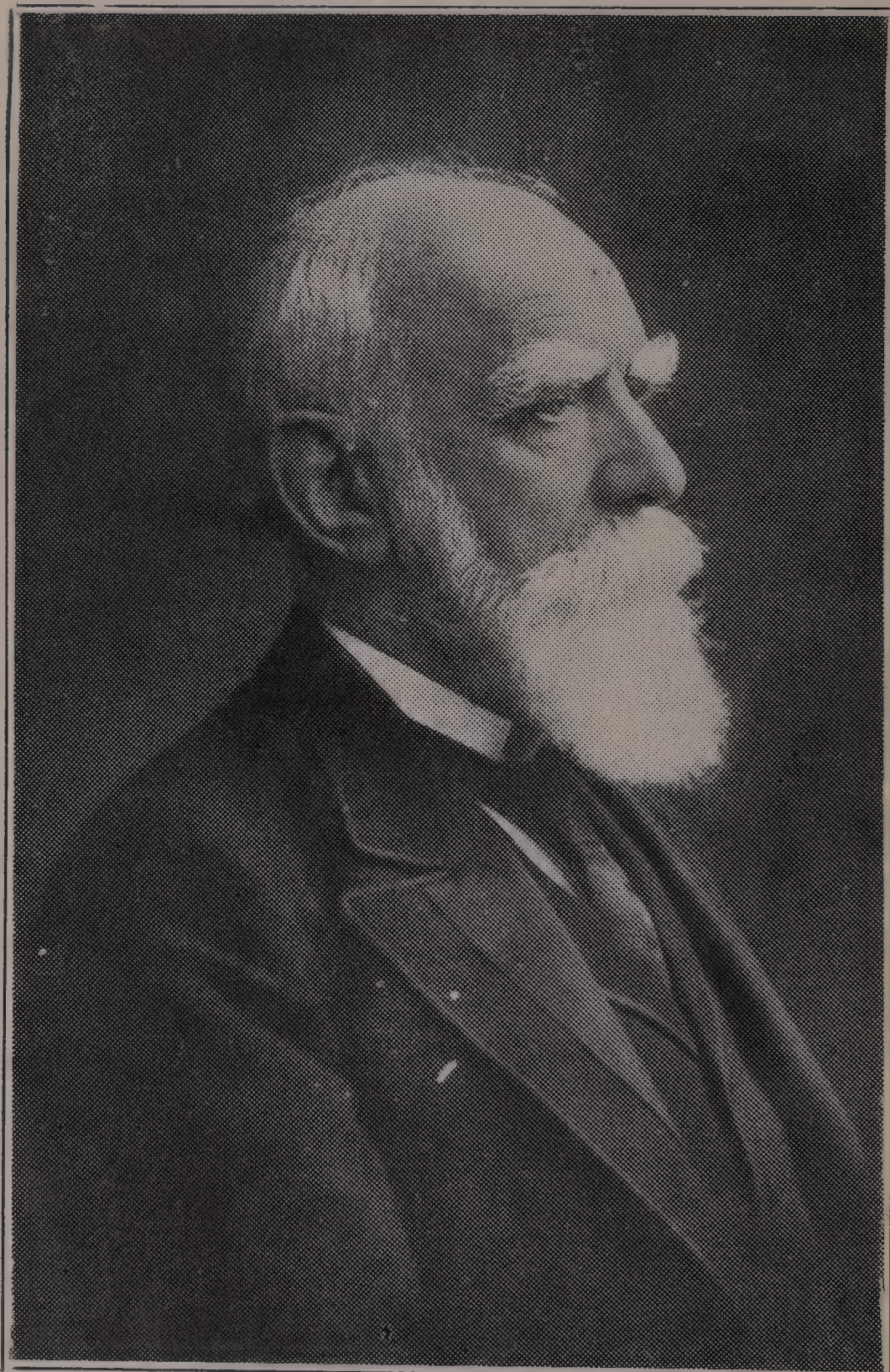
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The Right Hon. LORD STRATHCONA & MOUNT ROYAL, G.C.M.G., LL.D., P.C.,
High Commissioner for Canada.

INTRODUCTION :

BY

LORD STRATHCONA.

MR. BARRETT has asked me to write a short preface to his book, and it gives me pleasure to comply with his request.

The series of interesting articles, which appeared in *The Financier*, on the resources and industrial development of Canada attracted a good deal of attention, and deservedly so. They contained the information which he gathered, and the impressions which he formed, during his visit to the Dominion. This volume is a reprint of those articles, revised and brought down to date, and it is seldom that in one volume so much is found in the way of reliable *data*—valuable alike to the student of Canadian progress and development and to those who, from a more practical and commercial standpoint, desire to know what Canada is and what it is likely to become.

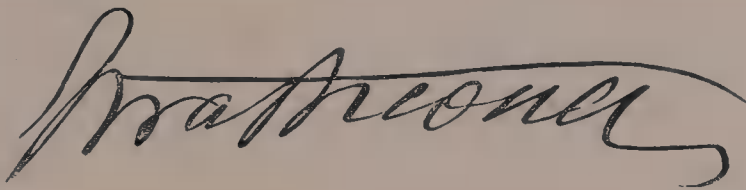
It may be that every statement the volume contains will not meet with the approval of the reader, but, taken altogether, it is an honest endeavour to make known the advantages which Canada offers to capitalists, business men, and the ordinary settler. It therefore has my warmest sympathy, and will be welcomed by every one who takes an interest in the great Dominion.

Canada has advanced by rapid strides in the last decade. This is the result of the development of her great resources in agriculture, mines, forests, fisheries and manufactures, and especially, of the opening up of the country by railways and waterways, which have rendered the uttermost parts of the Dominion more accessible than they were before, and have provided means for disposing of the produce and manufactures of the different Provinces. In addition to the Canadian Pacific Railway, there are two other transcontinental railways in course of construction, besides shorter lines too numerous to mention. It seems to be the destiny of Canada to continue along the path of progress for many decades—one might almost say centuries, to come. Before the end of the century its population ought to exceed that of the United States at the present time, considering the facilities the country offers for the provision of homes for a large population, and the ease with which settlers can now reach it. The advantages Canada offers are being recognised in every portion of the United States and of Europe, and immigrants of all nationalities are pouring in to reap the benefit of the riches with which it has been endowed.

One of the greatest needs of Canada at the moment is improved steamship communication with the United Kingdom. This is no reflection upon the existing services provided by the Canadian Pacific Railway and by the Allan Line. It is infinitely easier to reach the Dominion now than it was even a few years ago, but something better is still wanted. The service to Canada should at least be equal to that to the United States; indeed, it ought to be better, considering the geographical advantage which the Dominion enjoys in being about 500 miles nearer to Europe than New York or any other American port. It is gratifying to notice that the question has been discussed by the Imperial

Conference, which has placed on record its opinion that improved communication is necessary and advisable, both on the Atlantic and on the Pacific, in order that a fast route may be available between Great Britain and Australia and New Zealand by way of Canada. I trust, therefore, that at no distant date it will be possible to travel between these different parts of the Empire in less than three weeks, and I am sure that such a service, of which I have long been an advocate, will be of inestimable benefit to the countries concerned and to the Empire generally.

In conclusion, I wish Mr. Barrett's volume all the success it deserves. Its wide circulation cannot fail to be of advantage to Canada and to Canadian interests.

A handwritten signature in dark ink, appearing to read "W. B. E. Barrett". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

CANADA'S CENTURY.

PRELIMINARY.

THE OBJECTS OF MY TRIP TO CANADA.—AN EXTENSIVE PROGRAMME.—SOME OF THE CONCLUSIONS FORMED.—CANADIAN MUNICIPALITIES AS BORROWERS.—CANADIAN PROVINCIAL LOANS AND THE TRUSTEES ACT.—CANADIAN RAILWAY PROGRESS.—THE ADVANCE OF CANADIAN BANKING.—“CANADA'S CENTURY.”

“**W**HAT can they know of England who only England know?” Thus Kipling in a striking phrase expresses pregnant truth. Not till I went to Canada had I imagined anything that equalled the reality I saw. We hear and read of Canada's great growth, of wondrous progress, and of boundless possibilities, but the impressions we thus glean are but dim reflections of the actuality.

As far as one may, at this distance, make a study of a country's evolution, I had kept myself informed, and to that extent was fairly well equipped. And yet my tour of Canada astonished me. The object of my mission was to ascertain at first hand all that could be learned of interest and value to the public here at home. In cordial agreement, the proprietors of *The Financier* commissioned me to garner facts with strict impartiality and cool discernment. They knew how keen an interest in Canada existed here—how much investors on this side desired to have such information as they could depend upon—disinterested, up-to-date. And so I went with open mind, quite free from prejudice or predilection—not over-optimistic or inclined to over-rate, but with an earnest and sincere desire to see and hear and apprehend.

Thus I travelled East and West—saw cities, prairies, homes of industry—investigated every phase of enterprise—talked with men who represent the great Dominion's energy, and who are themselves its pioneers, or pre-eminent in fostering its growth. Their high capacity, their ardent faith, their indomitable courage

and endeavour are amongst the things that impressed me most. Such men could scarce be matched in any country of the world : not even the United States can point to their superiors in mettle or in aim.

But let it not be thought that I was thus content to glean my facts, and sought for nothing more. I left the beaten tracks at times : I saw the fertile lands where railway cars could not convey me, and I spoke with lonely settlers in the homesteads of the West. Before I started I resolved that certain matters were of prime importance. It seemed essential, for instance, that I should ascertain the practical effect of the Canadian Banking Act, and see to what extent it helped industrial development. The state of economic conditions in the Dominion was also a matter that required most careful investigation. In this connection it was most desirable to see how far the money borrowed here was being wisely spent, and also to observe the trend of municipal enterprise.

Then it was essential to inspect great undertakings in the leading branches of industry—to ascertain what progress was being made and what prospects they still offered for the investment of spare capital by people here at home. And, finally, I wished to see the agricultural and mining and forest areas of Canada. But that, unfortunately, was an item of my programme—and the only one—I could not fulfil quite so fully as I desired, for considerations of time and distance made the task impossible. I did, however, succeed in visiting, amongst other places, Cobalt, which has won a world-wide importance, and claims the especial consideration at my hands which it receives in chapters which follow.

Now, for a moment, let me flout convention, and, before marshalling the mass of information I have gleaned, present a summary of the conclusions at which I have arrived, and, in advance of details, give the kernel of my story. To begin with, it cannot be gainsaid that in Canada we have undoubtedly a country of illimitable possibilities—one that has already, indeed, achieved most wonderful results.

The Canadian Banking Act most certainly has helped the country's growth in a remarkable degree, by giving such facilities for business needs as scarcely could be matched elsewhere, and at the same time presenting such guarantees of soundness as to ensure the utmost confidence. It has a certain similarity to the system that obtains in Scotland, which has done so much for trade and commerce in the North. There is but one contingency that might cause an alteration by the Government of the Act—namely, the starting of small banks of quite another class from the great institutions that have grown with the Dominion's growth.

Financially, commercially, and in respect of her industrial expansion, Canada's position is unquestionably sound. The only drawback is the insufficiency of capital, for, with such rapid growth as is now in progress, domestic finance does not serve for all requirements. Already British enterprise has done much, but Yankee keenness seems inclined to do a great deal more. Canadians are much surprised at the spectacle of English capital holding off, whilst the Americans are eager to acquire the very pick of the chances that occur. The latter have already obtained control of many leading industries, and they are all the while endeavouring to win still greater dominance.

But here indifference is weakening. Canadians themselves are not aware of the considerable interest now shown in their great country's opportunities. I know for certain that the principals of leading English industries have visited Canada to see and study for themselves the conditions now existing there. And something, surely, must result from such solicitude.

In the new North-West there are millions of acres of the finest wheat-growing lands in the world. I have run my arm eighteen inches deep into the richest, blackest loam it is possible to conceive. For business men Canada can give such chances as are not to be found elsewhere, and men with from £250 to £1,000—men, that is, of the right sort, men of stamina and grit, strenuous and willing to work hard—are certain of success if they will but go West, and, with good judgment, start where towns are springing up with marvellous rapidity. Established there, where fertile lands ensure a permanent prosperity, they will build their fortunes on a rock, and not on shifting sand.

Some people here are nervous lest the influx of Americans to the Far West of Canada should weaken the ties that bind the great Dominion to the Motherland. Of that there need be no fear, I am assured. The ties are indissoluble, and, moreover, the incoming Americans when they settle become naturalised, and make good Canadians. The laws they find are excellent, and—what especially appeals to them—they are well administered.

One more point I wish to make clear: though in Canada no such extreme of municipal Socialism as exists in England has yet been reached, a tendency that way needs to be curbed if the Dominion would not stultify its progress and its chance of securing English capital. Municipalities can scarcely expect to borrow money freely here for schemes intended to compete with private enterprise. I have in mind a growing city, with a splendid power scheme now installed that drives electric cars and otherwise supplies all local needs. But there idealists are forcing on a scheme of municipal electric power whilst citizens have reason to complain that water is imperfectly supplied.

Winnipeg and Toronto last year spent £2,000,000 sterling on new buildings meant for permanence as well as style—buildings imposing, well-equipped and up-to-date in all respects. Such object-lessons must impress: they prove what Canadian municipalities can do. The chapters which follow, dealing with the cities of Canada, will serve to acquaint the reader with the rapidity of the progress that is being made in the development not only of the cities of established growth, but of the young, infantile communities of the North-West—the fruitful germs of the Canadian cities of the future.

Here let me say also that I consider everything seems to point to the importance, if not the imperative necessity, of the Imperial Government bringing the Provincial loans of Canada within the scope of the Trustee Act. These provinces are in all respects equal in importance to the Australian Colonies comprised in the Commonwealth. For instance, Ontario is probably the richest Colonial province in the Empire: it has a population of over two millions, and its securities are really as gilt-edged as any to be found in the Colonial list. Of course the reason why the Provincial loans of Canada are not on an equal footing with those of the Australian Colonies is that the States of the latter country were self-governing Colonies before they became part of the Commonwealth. But it is quite time that means were found to remove this distinction. Certainly Canadians would greatly appreciate the removal of the grievance, and, after all, there do not seem to be any insuperable difficulties in the way of the accomplishment of this legitimate desire.

Any financial and industrial review of Canada as it is to-day must of necessity commence with the railways, for it is by their instrumentality that a territory nearly as large as Europe has been converted from a picturesque wilderness of boundless prairies, almost impenetrable forest and towering mountains, to a fertile land capable of supporting a population as large as that of the United States of America. The Canadian railways now span a continent 3,000 miles wide, and spread over it a close network in all directions. The most gigantic obstacles raised by Nature in her grandest mood have had to be overcome by modern engineering skill in order to accomplish much of this work. How great the railway progress has been is shown by the fact that in 1871 the mileage of the railways was only 2,497, whereas now it extends to over 20,000 miles. Under these circumstances I have devoted several of the earlier chapters of this work to some general account of the Canadian railways, and to specific descriptions of some of the leading systems, which have done such splendid pioneering service in the interest of Canadian development.

It is, of course, an absurd mistake to assume, as many in this country do whose information is limited and behind the times, that the manufacturing industries of Canada are a negligible quantity. Probably some of the chapters in this work will serve in a measure to correct this wholly inaccurate estimate of the industrial position of Canada. True it is that, first and foremost, the greatest of all Canadian interests is Agriculture, but in Canada Agriculture is in a very special sense a parent industry—its offspring is a prolific one, embracing the provision of means for supplying every sort of material requirement. In this particular Canada has been singularly successful, and whereas twenty years ago or less the Dominion was dependent upon outside sources of supply for the satisfaction of nearly all its most important needs, there are now comparatively few which it is unable wholly, or in a large measure, to provide from within the scope of its own natural or manufacturing resources.

Agriculture, then, being the parent industry of Canada, I have given it, in its various aspects, first place, after the railways, in my review of Canadian industrial activities. The forest, mineral, fishery, manufacturing and other resources of Canada then present themselves for consideration in natural sequence. What I have to say respecting these varied interests, the rapid development of which in placing the future prosperity of Canada on a sound and permanent basis, is not put forward at haphazard. It is the result of personal investigation on the spot, supplemented by data taken from official and other equally reliable sources, and by the latest information which has reached this country from Canada concerning Canadian affairs. In order, however, to place everything before my readers—all of whom may not, conceivably, be familiar with Canadian affairs—in the clearest light, I preface the record of my visit to Canada and of my investigations with a General Survey of the position in Canada at the present time, indicating, in the briefest terms, the events and circumstances which have led up to the present wave of unprecedented prosperity which has overspread the national life of Canada.

It is not, of course, practicable in a work of this character—essentially a record of a visit to Canada which had its limitations in matters of time and opportunity—to enlarge upon every individual industry which is now in the course of vigorous development in the Dominion. But I hope to have been able to show in the various chapters of this volume that Canada's manufactures, far from being of little or no account, are of considerable magnitude, and that even now, in their comparative infancy, they sustain and give scope for the activity of a large proportion of her total population. I think also that I show that Canada is stimulated and encouraged to become a great industrial nation by the splendid

example of her neighbour, the United States. I have further demonstrated that in many important respects she has the advantage of the latter country, and that the chances are all in favour of her development in the future being more rapid than that of the United States in the past. I have quoted some striking statistics indicating the progress made within the past twenty years and the manifold variety of the industries already established, and set forth the extent, diversity and wide distribution of her natural resources. Last, though not least, I have pointed out that, as regards electric power and transportation, she is provided with facilities second to none obtainable in any other country in the world.

All these premises being established, the conclusion that Canada offers favourable and in some respects unique opportunities for successful enterprise and investment at present and in the future cannot seriously be contested. But probably nothing can be submitted to the reader's consideration which can more clearly demonstrate the rapid rate of progress now being made by the Dominion than a reference to Canadian banking figures. In 1894 the total paid-up capital of the Canadian banks amounted to 62,063,371 dollars, and the deposits to 181,743,890 dollars. By 1905 these figures had increased to 82,655,828 dollars and 531,243,476 dollars. That every possible confidence is felt in the stability of the banks is fully shown by the substantial premiums at which the shares of all the leading institutions stand in the market list. This satisfactory position is no doubt very largely due not only to the excellent management of the banks, but to the exceptionally fine system of banking laws in force in the country. With the Canadian banking system I deal fully in a subsequent chapter.

Now that I have returned home again and can regard all I saw and heard from the point of view of a more distant perspective, I am more than ever convinced of the immense potentialities and the latent resources possessed by the Dominion of Canada. The great things achieved by the Canadians in the past, the magnitude of which is only now becoming recognised and appraised at something approaching to its proper value, are destined to be eclipsed by the undertakings of the future which are essential to the working out of Canada's industrial and political destiny as a great and powerful segment in our Imperial heritage. Assuredly every evidence emphasises with increasing force the truth of Sir Wilfrid Laurier's prophetic pronouncement that, if the Nineteenth Century saw the making of the United States, assuredly the Twentieth will be

CANADA'S CENTURY !

CANADA NOW: A GENERAL SURVEY.

A HISTORICAL ÉPITOME.—THE ALBERTA AND SASKATCHEWAN ACTS.—SOME PROVINCIAL STATISTICS.—THE PHYSICAL CHARACTERISTICS OF CANADA.—THE QUESTION OF IMMIGRATION.—CANADIAN EXPORT AND IMPORT TRADE.—1906: CANADA'S RECORD YEAR.—THE NATIONAL AND PROVINCIAL FINANCE OF CANADA.

IN order that my readers may adequately appreciate the financial and industrial position and prospects of the Dominion of Canada, it is desirable as a preliminary that I should, within as brief a compass as possible, lay before them a general survey of the dominating features, physical and economic, that Canada presents to-day, and indicate the chain of events and circumstances which has led up to the unprecedented degree of prosperity which characterises the material life of the Dominion in this the seventh year of the Twentieth Century. By common consent the remarkable developments which have taken place in the United States constituted the most striking historical fact connected with the progress of the Nineteenth Century, and the lesson has not been lost upon our Canadian kinsmen. They have in their time experienced the drastic effects of periods of severe depression, but they have emerged from the ordeal little the worse for their vicissitudes. Now that the cloud of depression has shown its silver lining, the Canadians have become alive to the full significance of the natural resources and potentialities of their country; and most of those who have had opportunities, such as I have had, of enquiring into these on the spot will find themselves in cordial agreement with Sir Wilfrid Laurier in predicting that what the Nineteenth Century was to the United States, so shall the Twentieth Century be to Canada.

It is difficult for the average reader at home readily to grasp the territorial immensity of the Dominion of Canada. Half a continent, as large as the whole of Europe, and presenting the greatest amount of coast area of probably any country in the world, Canada, according to the figures upon which the Census returns of 1901 were based, contained an area of 3,228,903 square miles, populated then by less than five-and-a-half million souls,

a total which, however, has since increased to considerably over 6,000,000. Originally a French colony—New France, as it was called—the area of Canada proper was, in virtue of the Treaty of 1783, confined to what have since become the Provinces of Ontario and Quebec, which were formerly known as Upper and Lower Canada respectively.

But, to go a little further back—although for the purpose of this work my historical retrospect need only be of the briefest description—it is a mistake to assume that the beginnings of Canada only date back to the landing on the shores of Gaspé in 1534 of Jacques Cartier, a navigator, who hailed from St. Malo, in France. As a matter of fact, England was “in at the beginning” of that then *terra incognita* now called Canada, it becoming known to Europeans as the result of the landing on the coast of Labrador, so far back as 1497—when Henry VII. was King of England, and a year-and-a-half before Columbus sighted American soil—of John and Sebastian Cabot. But England was slow to follow up her discovery, and it was left for a Florentine sailor named Verazzano, sailing under the protection of the French flag, in 1524 to navigate the coast from Florida to Cape Breton, and appropriate the ill-defined region for France under the title of New France. This was followed by Cartier's appropriation of the strip of land at Gaspé.

Cartier's first occupation of Gaspé was of brief duration, but a year later he returned thither and made more extensive explorations, navigating the St. Lawrence as far as Quebec—then a native village—and further still to the Indian town of Hochelaga, which he renamed Mont Royal, afterwards corrupted into Montreal. For a time these hardy Norman and Breton adventurers enjoyed a monopoly of fish and whatever else might reward their enterprise, but it was not till three-quarters of a century later that a better-organised attempt was made to develop this territory. The leader of this expedition, Samuel de Champlain, was in person admirably equipped for the venture, and, while seeking to propagate Church doctrines, at the same time recognised the value of developing trade. Then Quebec grew up, and gradually the French settlement expanded from Acadia in the East to the Great Lakes in the West, and even as far south as the Gulf of Mexico. In 1621 a grant of Acadia was made to Sir William Alexander, and the name of the Colony was changed to Nova Scotia; but British attempts to colonise the country on a large scale were defeated by French intrigues, and the peninsula was re-ceded to France in 1667. The English colonists, however, refused to recognise this cession, and so harassed the French that in 1713, under the Treaty of Utrecht, France gave up all claim to the Colony.

These events, however, only marked the beginning of friction which was destined to become acute. Other English claims had sprung up in Canada. In 1670 Charles II. granted a charter to Prince Rupert, with the exclusive right to trade in the country watered by the rivers flowing into Hudson's Bay. Thus the famous Hudson's Bay Company was formed, enjoying valuable exclusive rights for practically two centuries, when their territory was transferred to the newly-created Dominion of Canada for a monetary consideration of £300,000 and the grant of large tracts of land. Meanwhile the great struggle for supremacy between Great Britain and the French in North America was developing, and in 1763 it terminated by the Treaty of Paris, under which France surrendered all her possessions in Canada, with all its dependencies, except the islands of St. Pierre and Miquelon, off the coast of Newfoundland.

With their combined populations of some 80,000 souls Canada and Nova Scotia sought to adapt themselves to the new set of conditions. By the passing of the "Quebec Act," the old French laws were declared binding in relation to property and civil rights, while the criminal law was superseded by the English form of trial by jury. Under this Act, also, Quebec annexed large territories, including that part of the United States now forming Minnesota, Wisconsin, Michigan, Ohio, Indiana and Illinois, which passed from Great Britain again in 1783. During the war of American Independence, Canada was invaded by the Americans, and at the end of the war a large number of Loyalists from the United States migrated northwards, forming the two new Colonies of New Brunswick and Ontario. Then came the splitting of Canada, owing to racial differences, into Upper and Lower Canada, in 1791, the former being occupied mainly by United Empire Loyalists, while Lower Canada was mainly peopled by French-Canadians. In the same year a Constitution was granted, establishing Government with an elective legislature. Discontent and friction were gradually fomented into active rebellion in 1837-38, but Great Britain supported her right with her might, and retained her authority and her possessions intact.

After this a new era dawned. The two races recognised the need of co-operation for the development of their common country on peaceful lines, and the United States arrived at the sensible conclusion that there was room enough on the continent for the Canadians as well as themselves, and for each to work out their own salvation in their own ways. Responsible government was granted to Upper and Lower Canada in 1840, and the interests of the individual Provinces were consolidated by the passing of "The British North American Act, 1867." This involved the establishment of a Legislative Confederation, under the title of the Dominion

of Canada, which embraced within its scope the Provinces of Quebec, Ontario, New Brunswick and Nova Scotia. Since then the area has been increased by purchase and by the inclusion of other Provinces—notably British Columbia in 1871 and Prince Edward Island two years later—until in 1880, by Imperial Order in Council, it came to embrace all that had previously been known broadly as British North America. From this generalisation, however, Alaska, which belongs to the United States, and a strip of bleak coastland in Labrador, which is under the administration of Newfoundland, are excepted.

The most recent territorial change in connection with the Dominion took place on the first day of September, 1905, when, by reason of the Alberta and Saskatchewan Acts, various modifications of territorial extent were inaugurated, and Alberta and Saskatchewan became Provinces of the Dominion. The two Provinces are divided by the meridian of 110 West of Greenwich, Alberta being bounded on the west by British Columbia, and Saskatchewan in the east by Manitoba, and towards the north by the North-West Territories. Both Provinces are separated from the United States by the International Boundary at the 49th parallel on the south, and the 60th parallel on the north. The Dominion of Canada, therefore, as we know it to-day, consists of the undernoted Provinces, recapitulated with their capitals, area and population per square mile as given in the following tabular statement compiled from the Census returns of 1901:—

| Province. | Capital. | Area in sq. miles. | Popu- lation. | Popu- lation per sq. ml. |
|-------------------------|-------------------|-----------------------|------------------|--------------------------------|
| Ontario | Toronto | 260,862 | 2,182,947 | 9.90 |
| Quebec | Montreal | 351,873 | 1,648,898 | 4.82 |
| Nova Scotia | Halifax | 21,428 | 459,574 | 22.3 |
| New Brunswick | Fredericton | 27,985 | 331,120 | 11.60 |
| Manitoba | Winnipeg | 73,732 | 255,211 | 3.96 |
| Alberta | Edmonton | 253,540 | } 211,649 | 0.5 |
| Saskatchewan | Regina | 250,650 | | |
| N.-W. Territories .. .. | .. .. | 1,614,019 | | |
| British Columbia | Victoria | 372,630 | 178,657 | 0.48 |
| Prince Edward Isld | Charlottetown | 2,184 | 103,259 | 51.6 |
| Total .. .. | .. .. | 3,228,903 | 5,371,315 | 1.7 |

As the new Provinces of Alberta and Saskatchewan are the least familiar of the Canadian Provinces to people at home—

perhaps to the great majority of even educated people they are as yet but little better than geographical expressions, suggesting little else than a wilderness and all the miscellaneous wildness which is proverbially associated with the great West—it will, no doubt, surprise some readers to learn that the area of the two Provinces totals up, as above shown, to over 500,000 square miles, which, to quote official language, is “as large as the united area of Great Britain, France and Germany, as large as the States of Michigan, Wisconsin, Iowa, Minnesota and the two Dakotas, and more than twice as large as the six New England States, together with New York, New Jersey, Pennsylvania, Ohio and Indiana.” So that when one comes to glance at an up-to-date map of the Dominion of Canada, one finds half a great continent, stretching from the Atlantic to the Pacific, and northwards from the International Boundary to the Arctic regions and eternal ice, all acknowledging the British flag, and loyal in the devotion of its population, scattered and sparse though it may be in many of its vast areas, to the great Imperial family of which it forms so important a member.

Since the Confederation became an accomplished fact the most important incidents of a disturbing character in the history of the Dominion were the half-breed rebellions under Riel in 1869 and 1885. The first of these, however, collapsed under the joint influences of Lord Strathcona’s (then Mr. Donald A. Smith) intercession and the hopelessness of resistance to the force commanded by Colonel (now Lord) Wolseley in what became known as the Red River Expedition, Riel himself taking refuge in flight. The 1885 rising was also suppressed, and the chapter ended with the execution of Riel.

In more peaceful directions events have moved rapidly since the Confederation. The repeal of the Navigation Acts of 1847 removed all commercial restrictions, and the last commercial preference disappeared in 1860. Following on the granting of responsible government, the right to manipulate their own tariff and the right to give preferential tariffs to other Colonies came as a matter of course, though in the latter case not until 1879. In 1881 Canada established her claim to be heard regarding treaties affecting Canadian interests, and in 1897 the right to demand the abrogation of an obnoxious treaty was conceded. The Halifax Award in 1888 justified the Canadian contention against the interference of the United States with the fisheries; the Behring Sea Award settled the sealing difficulties in 1897; and a joint Commission met at Quebec in the following year to determine all outstanding questions between the United States and the Dominion. These reached a final solution in the Alaskan Boundary Commission’s settlement of the frontier line between British

Columbia and Alaska in 1903—a decision, however, which was received with the greatest disfavour by the Canadians, who, then and since, have not hesitated to express their opinions regarding it very freely.

I have already mentioned the immense extent of the coastline of the Dominion. The chief indentation on the east is the Gulf of St. Lawrence, which represents about 80,000 square miles of water, while further south, separating Nova Scotia and New Brunswick, and rendering the former a peninsula, is the Bay of Fundy. Away to the north the land is broken into by innumerable bays and fjords, chief amongst which is the Gulf of Boothia, Ungava Bay, Hudson's Bay (which has a water area of no less than 350,000 square miles), and St. James' Bay. The Pacific Coast, from the Island of Vancouver upwards, is indented in a remarkable manner, although the areas of water are of much less considerable extent than on the Atlantic Coast. A striking physical feature of the Dominion, of course, is the great chain of lakes, embracing, so far as the Canadian shoreland is concerned, Lakes Superior, Huron, Erie and Ontario, which feed the St. Lawrence, these lakes having an aggregate area of 72,950 square miles. But there are many more important lakes besides, especially towards the North-West, amongst them being Lakes Nipigon, Winnipeg, Manitoba, Athabasca, Great Slave, Great Bear, Winnipegosis and Mistassini, and Lake of the Woods and Lake St. John. Canada, too, is remarkable for the number and extent of its rivers. The dominating St. Lawrence is fed by numerous important tributaries, amongst them the Saguenay, St. Maurice and Ottawa, although the list is far from being exhaustive. Then there are the Fraser, the Thompson, and a long stretch of the Columbia in British Columbia; the Athabasca, Peace and Mackenzie to the north; the Albany, the Nelson, the Churchill, and numerous others which flow into Hudson Bay; the Nelson, draining the waters of Lake Winnipeg, which is fed by the Saskatchewan and Red Rivers, the Winnipeg and the Assiniboine. Altogether it is questionable if any other territory in the world the size of the Dominion is equally abundantly watered by lake and river, the falls available for power-supply purposes being correspondingly great.

Chief amongst the other dominating physical characteristics of the Dominion are the Rocky Mountains, separating British Columbia from Alberta, amongst which are Mount Brown, Mount Murchison, Mount Hooker and Mount Logan, the last-mentioned representing the highest elevation on the North American Continent. As I shall have occasion to point out in subsequent chapters, the great bulk of the unsettled area of the Dominion consists of either heavily forested land or vast plains of prairie. The

natural configuration of the country, together with its geographical position, naturally suggest extremes of heat and cold, and while, as a matter of fact, the cold is generally intense in winter and the heat correspondingly great in summer, the severities of the former have been the subject of a good deal of exaggeration. The degrees of heat and cold differ widely in various parts of the Dominion, and, whatever else may be said about them, the snows of winter are as important to the successful conduct of many of the Canadian industries as the warm and genial summer is to the rapid ripening of the crops and the cultivation of fruit which cannot be raised in the open air in this country, where climatic influences are less extreme. Were it not for the Canadian snows, the soil would suffer severely from the frosts, and, again, without the snow it would be practically impossible to secure transport for the timber logs from the forests far up country.

Such then, in brief, are the historical and physical elements in the story of Canada which lead up to the present situation. It remains for me to complete the survey with equally concise references to that development of population and trading activity in the Dominion which has contributed in so all-important a measure to the present significant position of Canada amongst the commercial and industrial countries of the world. Since the 'seventies the population of the Dominion has about doubled, and, as I have already stated, it is estimated at present to be about 6,250,000. Official figures give the number of new settlers entering Canada during the year ending June 30th, 1906, as 189,064, and of these it is calculated that about 75 per cent. have settled in the Western Provinces. As I show in my chapter dealing with Canadian Immigration, the influx from Great Britain, Northern Europe and the United States promises this year to be increasingly great. Indeed, immigration is on all hands expected to be on an unprecedented scale during 1907, and the bulk of the new population will settle in the West. As it is, Canada possesses more than half of the white population of all the British Colonies, and, strange as it may seem, I am told only about 5 per cent. of her immigrants remain unnaturalised. About 87 per cent. of the population is of Canadian birth, and 8 per cent. British born, and it is suggestive to note that Canada commenced the Twentieth Century with the same population as that with which the United States began the Nineteenth. In that fact alone there is surely encouragement enough for "Canada's Century."

It is doubtful if the present influx of new settlers into Canada has ever had a parallel; if so, only in the United States has anything on a similar scale ever been witnessed. The attraction which draws these throngs of eager immigrants is the prospect

of obtaining on the easiest possible terms, and even in some cases free of cost, some of the finest land for the production of wheat and other crops that can be found in the British Empire. The Western soil is wonderfully fertile. It is far richer than any to be found in the neighbouring States of America, producing double the crops which some of the finest land in those States can yield. Yet land can be obtained in the Canadian North-West at one-sixth of the ruling value of inferior land in the United States. It is scarcely surprising, therefore, that the Americans are crossing the border in their thousands. Whilst all parts of Canada are receiving fair consideration, the tide flows most strongly, as I have said, to the West—to Manitoba and the newer Provinces of Alberta and Saskatchewan. An immense territory is there available, capable of accommodating millions of prosperous settlers. Towns are springing up, railway communications are being provided, and the prairies are being gradually, indeed rapidly, transformed into centres of throbbing industry.

But perhaps the most convincing of all proofs of the advancing prosperity and greatness of Canada are afforded by the figures which tell the story of her increasing trade and manufactures, and the steady strengthening of her financial position. The details of the internal and foreign trade of Canada for 1906 are not, at the time of writing these lines, available to me, but it has been authoritatively given out that the foreign trade of the Dominion has shown a large increase, amounting in value to 550,854,000 dollars, as compared with 495,010,028 dollars in 1905. The following official statement gives the principal totals for the year 1905, compared with those for 1900, and showing the increase or decrease which had taken place in each case :—

CANADIAN FOREIGN TRADE.

| Classification. | 1900. | 1905. | Increase (+) or Decrease (—) |
|---------------------------------|-------------|-------------|------------------------------------|
| IMPORTS. | Dollars. | Dollars. | Dollars. |
| Dutiable goods for consumption | 104,083,645 | 160,033,585 | 55,949,940 + |
| Duty-free goods for consumption | 68,817,013 | 102,339,985 | 33,522,972 + |
| Coin and Bullion | 5,939,228 | 8,012,660 | 2,073,432 + |
| Total Imports | 178,839,886 | 270,386,230 | 91,546,344 + |
| Duty collected | 28,621,870 | 43,531,328 | 14,909,458 + |

CANADIAN FOREIGN TRADE—*continued.*

| EXPORTS. | Dollars. | Dollars. | Dollars. |
|--|-------------|-------------|-------------|
| Mineral Products | 31,134,709 | 32,060,999 | 926,290+ |
| Fisheries | 10,671,848 | 13,410,617 | 2,738,769+ |
| Forest Products | 28,737,237 | 33,162,167 | 4,424,930+ |
| Animal Products | 55,681,870 | 67,714,403 | 12,032,533+ |
| Agricultural Products.. .. | 26,081,072 | 41,970,103 | 15,889,031+ |
| Manufactures | 15,287,530 | 22,423,966 | 7,136,436+ |
| Miscellaneous Products | 165,956 | 64,204 | 101,752— |
| Total Exports of Domestic Products | 167,760,222 | 210,806,459 | 43,046,237 |
| Foreign Products | 13,340,081 | 12,058,267 | 1,281,814— |
| Coin and Bullion | 4,774,454 | 1,759,072 | 3,015,382— |
| Total Exports | 185,874,757 | 224,623,798 | 38,749,041+ |

Some further idea of the progress made by Canada in manufactures may be gathered from a table which I reproduce from the *Free Press Evening News Bulletin*, of Winnipeg, of September 17th, 1906, which gives the value of the manufactured articles—that is, manufactures pure and simple, and excluding articles, such as forest, animal and other products, which are partially manufactured—exported from 1875 to 1905, inclusive:—

| | Dollars. |
|------------|------------|
| 1875 | 3,028,512 |
| 1885 | 3,181,501 |
| 1895 | 7,768,875 |
| 1900 | 14,224,287 |
| 1901 | 16,012,208 |
| 1902 | 18,462,970 |
| 1903 | 20,624,967 |
| 1904 | 19,864,049 |
| 1905 | 21,191,333 |

It will be seen that the 1905 figures in this table do not correspond with those for “manufactures” in the official table previously given, but the discrepancy can be readily explained by possible differences in what the two calculations include, the latter table including only those manufactured articles of which a record is kept by the Department of Trade and Commerce.

The proportion of manufactured goods exported is, of course, only a small part of the whole, and there is no means of gauging the internal consumption. The manufacturing output of Canada is now, however, estimated to approximate in value to about 600,000,000 dollars annually, and last year the factories were worked almost invariably to their full capacity. The number of factories has been steadily increasing for several years past, although exact figures since those collected at the Census of 1901

are not available. These Census figures are worth reproducing as indicating the relative importance of the Canadian provinces as manufacturers, the total production amounting in value in 1901, it will be seen, to 481,053,375 dollars:—

| | Dollars. |
|------------------------------|--------------------|
| Ontario | 241,533,486 |
| Quebec | 158,287,994 |
| Nova Scotia | 23,692,513 |
| New Brunswick | 20,972,470 |
| British Columbia | 19,447,778 |
| Manitoba | 12,927,439 |
| Prince Edward Island | 2,326,708 |
| N.-W. Territories | 1,964,987 |
| Total | <u>481,053,375</u> |

The unprecedented manufacturing and trading activity, which made 1906 a record year in, I believe, all the Canadian provinces, was recently emphasised in a speech delivered by Mr. Byron E. Walker, formerly general manager and now president of the Canadian Bank of Commerce. "The year which has just closed," said Mr. Walker, "was even more remarkable for volume of business and general prosperity than the year which preceded it, or, indeed, than any year in our history. It is unfortunate that we cannot estimate our internal trade, but we have been able to see in every direction a pressure to meet the demand for goods put upon manufacturers, merchants and transportation companies such as we have never experienced before, while the shortage in cars and motive power, notwithstanding unparalleled increases of rolling stock, has seriously interfered with the crop movement and the general distribution of merchandise." Moreover, the thirteen Canadian clearing houses showed for 1906 bank clearings to the total value of 4,014,564,518 dollars, as compared with 3,336,602,170 for eleven clearing houses in 1905. Further, Mr. Walker pointed out that at Montreal, Quebec, Halifax and St. John—and at the last-named port in a very remarkable degree—there was during last year an increase of all business connected with transportation, whether in exports, imports or immigration, the volume being in several respects the largest on record. Again, building operations have been correspondingly active in most of the towns and cities—the value of the new buildings erected in Montreal, Toronto, Vancouver and Winnipeg combined aggregating 37,495,786 dollars, against 28,703,640 dollars in 1905.

Rich in the possession of all the raw materials most essential to the industrial greatness of a country—coal, iron and other metals, and timber—Canada has, in addition, wonderful natural facilities for the development of electrical energy in the possession

of unlimited water powers. Apart from the great Falls of Niagara, the Dominion possesses, as a matter of fact, waterfalls sufficient to supply energy for the industrial wants of the whole of the North American continent. It does not require a great effort of the imagination to appreciate the important part which these invaluable facilities are bound to play in connection with the future development of the Dominion.

It is worthy of especial remark that at the present time Canada is manufacturing for herself goods for which, until recently, she was largely dependent upon the United States. A number of firms are making a speciality of steel rails, and car factories have been established for the manufacture of rolling-stock, these industries having been brought to their present magnitude by the railway extensions. The agricultural implement trade, too, has assumed enormous proportions, and Canada can boast of the possession of the largest and most important agricultural implement factory in the British Empire. Another thriving industry is the manufacture of boots and shoes, many of the firms rivalling their American competitors in organisation and equipment. The Portland cement industry is also making great progress, while the manufacture of furniture is now carried on upon a large scale. With the timber at its doors, there is every reason to believe this industry will assume very important proportions. Moreover, Canada seems destined ultimately to control the paper supply of the world. She has more lumber suitable for wood-pulp than any other country. Until recently the Dominion was content to ship the pulp, but now she manufactures paper as well on an increasingly large scale for export.

These are, of course, only a few instances of the wonderful industrial development that is taking place throughout the Dominion. It is the function of the chapters which follow to deal with the position and prospects of the representative industries of Canada in detail, and to indicate the extent of the natural resources of the Dominion upon which these industries can draw. A glance at the figures which show the national and provincial financial position will reveal a record of remarkable and almost uninterrupted progress. At the end of 1904, the date of the last available official returns, the public debt stood at 364,962,512 dollars (£72,992,500), with an estimated population of five and a-half millions of people, which is equal to 66.35 dollars (£13 5s.) per head of the total population. The growth of this debt had, with one or two exceptions, been almost continuous until 1903, when a reduction was shown. But against this debt Canada possesses some large assets, which act as a considerable set-off, and in the last few years have very greatly increased in value :—

| | | | | Total Debt. | Total Assets. | Net Debt. |
|------|----|----|----|-------------|---------------|-------------|
| | | | | Dollars. | Dollars. | Dollars. |
| 1895 | .. | .. | .. | 318,048,754 | 64,973,827 | 253,074,927 |
| 1900 | .. | .. | .. | 346,205,979 | 80,713,173 | 265,493,806 |
| 1901 | .. | .. | .. | 354,732,432 | 86,252,428 | 268,480,003 |
| 1902 | .. | .. | .. | 366,358,476 | 94,529,386 | 271,829,089 |
| 1903 | .. | .. | .. | 361,344,098 | 99,737,109 | 261,606,988 |
| 1904 | .. | .. | .. | 364,962,512 | 104,094,793 | 260,867,718 |

The interest paid on this debt comes out of the public revenues, but is reduced on balance by interest received from investments, so that, while the gross interest on the public debt works out at a little over 3 per cent., the interest received from investments reduces this rate to a little under $2\frac{1}{2}$ per cent.

In addition to the national finances, each Province has its own Budget, in which land, woods, forests and agriculture naturally form the chief items. The receipts and expenditure of these Provincial Budgets, according to the last published returns, were as follow :—

| | | | | Receipts. | Expenditure. |
|----------------------|----|----|----|-----------|--------------|
| | | | | Dollars. | Dollars. |
| Ontario | .. | .. | .. | 6,128,358 | 5,267,453 |
| Quebec | .. | .. | .. | 4,880,687 | 4,795,469 |
| British Columbia | .. | .. | .. | 2,638,260 | 2,862,794 |
| Nova Scotia | .. | .. | .. | 1,194,756 | 1,161,456 |
| New Brunswick | .. | .. | .. | 890,653 | 885,457 |
| Prince Edward Island | .. | .. | .. | 307,730 | 356,120 |

Quebec's total expenditure of 4,795,469 dollars leaves a balance of a little over 85,000 dollars, as compared with the 861,000 dollars surplus of Ontario, which has no interest on public debt to provide for.

In these figures, both national and provincial, a position is revealed which is at once both satisfactory in the present and full of promise for the future in the boundless resources of the great country which goes to make up the vast territory of the Dominion. To make these resources and their possibilities and potentialities more fully understood by the British public generally, and by British capitalists and investors in particular, is the *raison d'être* of this volume and of the task to which I have addressed myself.

SECTION I.

THE CITIES OF CANADA.



STATUE OF SAMUEL DE CHAMPLAIN, QUEBEC.

CHAPTER I.

QUEBEC AND MONTREAL.

THE ST. LAWRENCE ROUTE TO CANADA.—HISTORIC QUEBEC.—
THE COMMERCIAL AND SHIPPING POSSIBILITIES OF QUEBEC.
—MONTREAL: THE COMMERCIAL METROPOLIS OF THE
DOMINION.—MONTREAL AS A GROWING CENTRE OF
MANUFACTURING AND SHIPPING INDUSTRY.—MONTREAL
STOCK EXCHANGE.

THERE are more ways than one by which the intending British visitor may reach Canada, and each traveller will probably have his own reasons for selecting a particular route. He may do worse than follow my example, and take the St. Lawrence route, placing his foot for the first time on Canadian soil at the historic and picturesque city of Quebec. From the middle or end of November until the middle of April the transatlantic steamships between Great Britain and Canada land their passengers at Halifax in Nova Scotia or St. John in New Brunswick, which are the Canadian winter ports for ocean travel and transport, and from these cities passengers proceed by rail to Quebec and Montreal. Then, during the summer months there are two entrances available to the Gulf of St. Lawrence, the first from the Atlantic through the Strait of Belle Isle, skirting the northern bleak headlands of Newfoundland, which lie to the south, and the even more desolate coast line of Labrador, to the north. The alternative route is through Cabot Strait, which separates Cape Breton Island on the south from Cape Ray, in Newfoundland, on the north. But by whichever opening the traveller enters the St. Lawrence, he has a long and interesting voyage through that estuary and up the river, which narrows from about a hundred miles at Cape Gaspé in New Brunswick, opposite the long-stretching island of Anticosti, to thirty miles a few hundred miles further up river, and subsequently to about two miles by the time Quebec is reached.

The scenery of the St. Lawrence is very varied, and generally interesting, vast expanses of desolate coast-land and veritable wilderness alternating with picturesque upland, for the most part densely forest-grown. As the more populated districts of Eastern Quebec are approached, one passes, as a preliminary to a more broadly-defined civilisation, widely-separated fishing

hamlets, backed by rugged forest-covered mountains, which would seem to render them almost inaccessible from the hinterland. Onwards the traveller passes wide stretches of fertile agricultural land, dotted with cosy-looking homesteads, perched amongst a rich garnishing of warm-tinted maples and birches, which present pleasing splashes of colour to relieve the dominating green of the pine-clad slopes, which are deeply creviced at intervals with wooded ravines, through which turbulent streams pour their waters to swell the volume of the St. Lawrence, on its onward flow to the absorbing ocean.



MEMORIAL TO GENERAL WOLFE ON THE HEIGHTS OF ABRAHAM QUEBEC.

One's first impression of the picturesque city of Quebec is pleasant in the extreme. It seems also a little puzzling and odd to find, as is the case, that the elements composing the landscape are so eminently French rather than English. Everything seems to suggest reminiscences of old France. It is not the France of Paris or Boulogne. It is a patchwork sort of France, suggesting here a bit of Dieppe; now a glimpse that reminds one of Rouen; again, there seems quite a slice of Marseilles wedged in between bits which might have been bodily transported from some little French fishing or seaport town. In fact, there is no city in all the North American Continent which possesses so

distinct an individuality as does Quebec, and as one steams slowly up to its mast-fringed wharves, beyond which is ranged a picturesque medley of old gabled houses, church towers and spires, and handsome public buildings, all dominated by the historic and commanding Citadel, one experiences a thrill which is not readily forgotten.

The first half-hour in Quebec is sufficient to convince the visitor, if he were not previously aware of the fact, that Quebec is nothing if not historic. I do not mean to infer that it is a dead city, or a dull one, although it is less strenuous in its efforts to



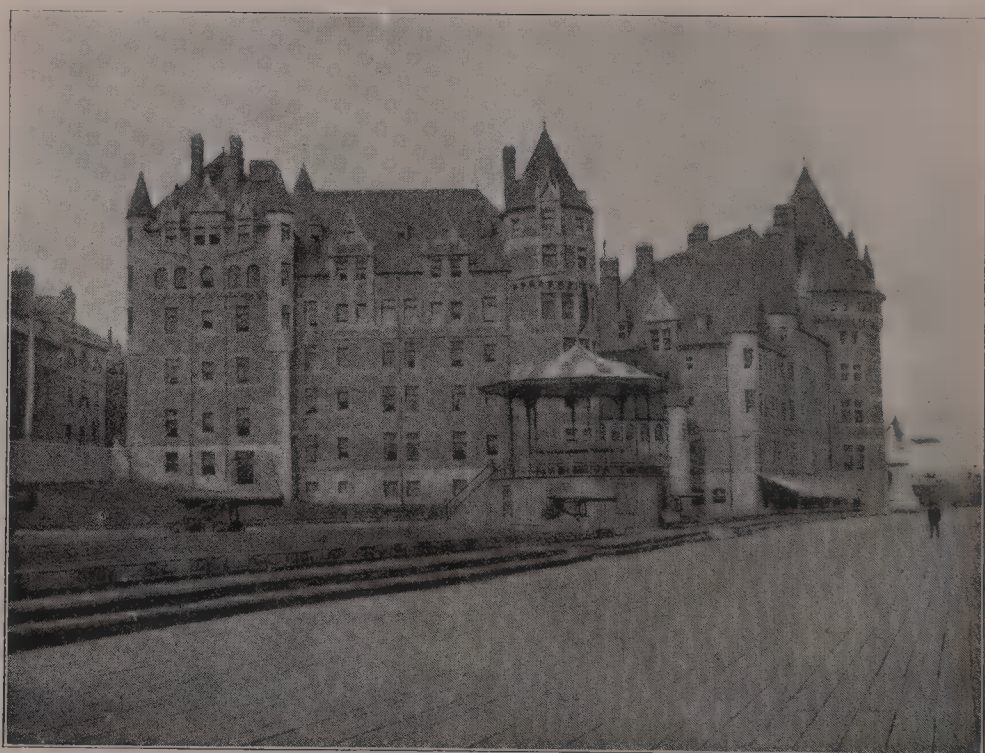
THE GATE OF THE CITADEL, QUEBEC.

accumulate dollars than perhaps its younger rivals further west. But Quebec is proud of its memories of the past—of Wolfe, and Murray, and Levis, and Montcalm, and the many other gallant soldiers, British and French alike, who slumber beneath its walls.

While, however, it is proud of its past, Quebec looks for great material things in the future. Its wharves and docks are busy with the ceaseless din of active trading. Factory shafts emit their clouds of smoke, which show that Quebec produces as well as consumes. But, apart from its historical associations, upon which I need not enlarge, the architecture of the city is probably the feature which most impresses the average visitor—

a delightful jumble of the old and the new. Some of its lanes and alleys—the unique *Sous-le-Cap*, for example, or quaint little Champlain Street—are unlike anything to be found elsewhere, and their French origin manifests an obvious intention to maintain their French traditions. Often the older houses are built on steep inclines, to negotiate which successfully one almost requires an alpenstock.

But, generally speaking, it is easy to get about Quebec, for the whole city is covered with a network of swiftly-moving electrically-driven cars, or light railways, as they are called, while the fastidious in the matter of hotel accommodation will have no reason to com-



THE CHÂTEAU FRONTENAC, QUEBEC.

plain of what they find in this particular in Quebec. The Château Frontenac is one of the most palatial in North America, and commands one of the most picturesque prospects in the whole world. Many of the buildings in Quebec, and especially the churches, have high claims upon the visitor's admiration, amongst them, for example, being the French Cathedral, the Church of Notre Dame des Victoires. while the Parliament buildings present a very fine elevation, which is seen to advantage owing to its commanding situation. The Citadel, adjoining the Château Frontenac, has, of course, a military individuality entirely its own. Altogether, a delightful time may be spent in Quebec,

exploring its lanes and its tortuous streets on foot or on board a *calèche*, or in exploring the beauties of the neighbourhood, amongst which the Montmorency Falls are regarded as a lion-in-chief. If one desires to shoot or fish, cycle or motor, the resources of the neighbourhood are equal to all the demands that may be made upon them, and I do not know that the predominance of the French element in the city and all round about it, and, indeed, throughout the whole Province, has any effect otherwise than that of making one's enjoyment the more complete.

When one comes to speak of Quebec as a business city with a



A CHARMING VIEW AT THE MONTMORENCY FALLS, NEAR QUEBEC.

future one is met with difficulties. The possibilities of Quebec, with its population (1901) of 68,000 souls, as a seaport cannot be exaggerated, but opinions differ as to whether they will be adequately realised. It goes without saying that Quebec being nearer the mouth of the St. Lawrence than Montreal makes it a natural outlet for shipping the produce of the Eastern Canadian provinces. And to a certain extent Quebec has realised its mission in this particular, but a combination of labour difficulties and a certain indisposition on the part of Quebec business people to meet the views of exporters further west have had the effect of causing a

large proportion of the shipping trade, which should have gravitated towards that city to be diverted to Montreal, which now has the lead amongst the Canadian seaports. Nevertheless, the Quebec people are waking up to a greater sense of the importance of their situation on the St. Lawrence, and, from all I could gather when in the city, I should be surprised if strenuous efforts were not made to recapture much of the shipping trade which at present finds its outlet at Montreal.

From a manufacturing point of view Quebec is making rapid headway. In the city itself the leather industry is one of increasing importance, and it is the principal centre of boot and shoe manufacture in the Dominion. There are also prosperous iron-works, and the production of agricultural implements and machinery is a flourishing interest. Then, of course, the lumber industry of the eastern part of the Province is of great significance to the trade of the port. Broadly speaking, Quebec exports Canadian produce, lumber predominating, to a value of more than a million pounds annually, and imports merchandise from Europe, the United States and elsewhere, to quite a quarter of a million more than the total just mentioned.

Rapidly increasing transport facilities will materially contribute to the general prosperity of Quebec, and chief amongst these will be the connection of the city with the whole railway system of Canada as soon as the bridge across the St. Lawrence has been completed. This bridge will be the greatest single-span cantilever bridge in the world. Taking all things into consideration, the commercial and industrial outlook for Quebec was never more promising than is the case at the present time. Indeed, I met many people in Canada who believe that Quebec is destined in the near future to show greater progress than any other city in Canada. Whether this is so or not will, in my view, very largely depend upon outside influences.

Geographically, from a commercial point of view, the city is magnificently placed; it has boundless natural resources in its immediate vicinity, and it is about to be linked directly with the vast network of rails covering Canada from east to west. All the essentials, therefore, are ready to hand for a great and prosperous future. It will be for the people of Quebec to show that they have the enterprise, the courage and the far-sighted prescience necessary to avail themselves of the unique advantages they already possess, and which will be theirs when the bridge is constructed. Probably the forward impulse will come from English and American capitalists turning their attention to the splendid field for enterprise afforded by the development of this ancient and historic city.

When the visitor to Canada leaves Quebec behind and moves further westward, he finds the City of Montreal, the commercial

metropolis of the Dominion, in many respects the very antithesis of the city he has just left. Pleasant of situation on the north bank of the St. Lawrence, at the junction of the Ottawa River with the greater stream, and prepossessing in its general appearance, as seen for the first time, it lacks the striking picturesqueness of Quebec, but there is a greater sense of modernity and business activity about its atmosphere than is the case with the older city. Without going into a historical retrospect regarding the comparative claims which the two cities can advance upon our sense of veneration, it is only fair to say that, after all, Montreal is not



GENERAL VIEW OF MONTREAL.

much the junior of Quebec, for while the sites of both cities were visited by Jacques Cartier in 1535, Quebec was founded by De Champlain in 1608, and Montreal became a trading outpost in 1611, becoming a more ambitious settlement through French enterprise in 1641. But the commercial, the political, and the municipal significance of Montreal is of much more recent date than that of Quebec, which it has left far behind in the point of population and material prosperity.

At the census of 1901 Montreal contained 267,730 souls, and last year it was estimated that these figures had increased to 352,000, the population of what may be termed Greater Montreal being placed to-day at 405,000. Never, certainly, has the prosperity

of the city been so marked as has been the case within the past two or three years, its limits having extended to a remarkable degree, and its manufacturing and commercial activities having advanced in corresponding measure. Although it has been stated that quite three-quarters of the population are of French origin or extraction, I am inclined to think that this computation should be considerably modified in view of the increased incursion of British, American and other non-French elements during the past few years. Certain it is that the business community mainly consists of people of English origin or descent. I met during my visit with no Canadians more generous and open-hearted than the people of Montreal, and none more proud of their adopted city.

It is not too much to say that the street architecture and the palatial character of many of the public buildings and business houses are, probably, the dominating features of Montreal to impress the visitor to-day. The atmosphere seems almost surcharged with prosperity. Money seems to abound, and activity reaches high-water mark in every department of business life. Yet, strange to say, while there is such abundant prosperity, there is a remarkable absence of hustle, which is so characteristic a feature of the large cities of the United States, for, to tell the truth, I never saw a commercial community, who got so much business through their hands, take life so easily as the Montrealers. All the same, the man who suffers from "that tired feeling" should give Montreal a wide berth, even though wages are better and average incomes higher than in corresponding cases on this side. The average labourer, for example, would rather smoke the pipe of idleness than engage himself for less than 1s. 3d. an hour!

The Canadian Pacific Railway is in a large measure responsible for the latter-day rapidity with which Montreal has grown and prospered, and that great organisation meets one at every turn in one form or another of its wide-spreading ramifications. The Grand Trunk Railway has here a magnificent station. Many improvements have been effected during the last ten or twelve years, and the building is now a fine monument to the enterprise of this great railway company.

Then Montreal is a power in the shipping interests of the Dominion. It is Canada's leading seaport, and the Montrealers do not mean to let the visitor forget that fact. Something like 85 per cent. of the agricultural products of the Dominion which are shipped abroad pass outwards from the docks and wharves of Montreal, and the value of these agricultural exports for the year ending June 30th, 1906, amounted to 56,731,410 dollars, out of a total of 120,518,297 dollars, representing the entire shipments from all Canadian ports during the period mentioned, Montreal thus showing a percentage of the total of 47.1. To accommodate this

rapidly increasing shipping trade the docks and harbour have been greatly extended during the past ten years.

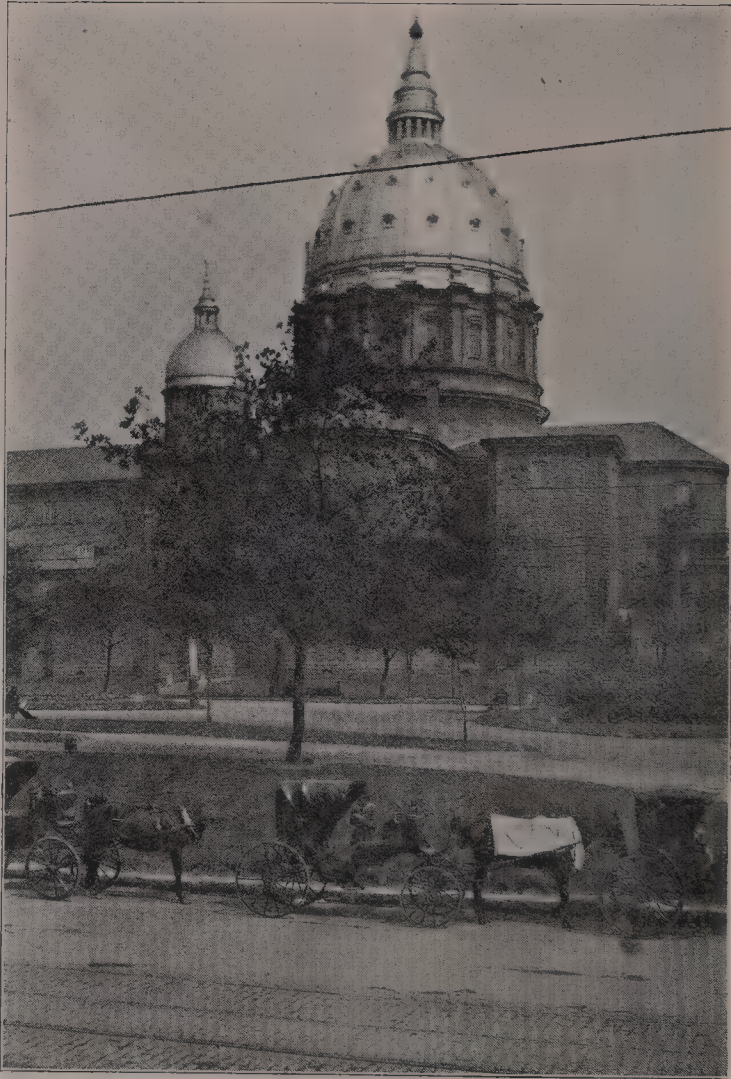
It is, of course, a matter for regret, but a physical obstacle which cannot be overcome, that the freezing of the St. Lawrence stops the shipping trade between Montreal and the outer world for about four months in the year, but the activity which rules during the open months compensates for all the slackness which the close



STATUE OF MAISONNEUVE, MONTREAL.

period involves. Very interesting is a stroll by the river frontage, parts of which recalled to my mind the famous Broomielaw at Glasgow, the Mersey frontage at Liverpool, and a modernised and improved edition of parts of Upper Thames Street in London. The people of Canada can deservedly be congratulated upon their enterprise and energy in the great work of making Montreal a seaport capable of accommodating vessels of the largest tonnage.

Fifty years ago vessels drawing more than 11 ft. of water could not approach the river. Now, through the expenditure of millions of dollars in dredging and other work, perhaps the largest ship afloat can moor alongside the streets of the city.



ST. JAMES'S CATHEDRAL, MONTREAL.

Montreal is making rapid headway as a centre of manufacturing industry. It has several iron foundries and engineering works, one of the principal of which is, I believe, owned by the Canadian Pacific Railway Company. The woollen and cotton manufacturing industries are making steady headway, and sugar refineries, breweries, clothing, tobacco, and boot and shoe factories find congenial scope for rapid development in the industrial districts of the city. As I have already said, the fine business establishments which one meets at every turn in the principal thoroughfares of

Montreal are a characteristic feature of the place. Many of the banks are splendid edifices, and the Bank of Montreal possesses, as mentioned more fully in another chapter, probably one of the most beautiful buildings devoted to banking in the whole world. The Clearing House is located in the same building, which is easily one of the "sights" of the city. Montreal, too, possesses a Stock Exchange, of which its members are justly proud, and it exercises an immense influence on the joint-stock enterprise of the Dominion.

In this city are situated two of the finest, if not the finest, Universities on the continent of America. I refer, of course, to the McGill and the Laval Universities. The former institution has sustained a great loss through the destruction by fire of its engineering buildings. This part of the University was unquestionably unequalled in America. More recently still the University has suffered a further loss by a second fire disaster. Montreal, too, is also the head of the canal system of Canada. These wonderful waterways, which have been constructed by the enterprise and energy of the Canadians, bring Lake Superior into direct water communication with the Atlantic Ocean.

For the rest, I would only say that Montreal can boast magnificent cathedrals—the Cathedral of Notre Dame and St. James's Cathedral—and many very fine churches. The Anglican Cathedral is by many esteemed the finest example of decorative Gothic architecture on the American continent. Standing on the top of the tower of one of the cathedrals with a Canadian, I was told by him that he was simply astonished at the tremendous development of the city. It was five years since he had looked upon it from that lofty standpoint, and during the interval it seemed to him to have doubled in extent.

The view from this point of vantage is superb. The St. Lawrence, of course, is seen winding its sinuous course seawards, and away in the middle distance is the Lookout Mountain, where in the old days watchers were stationed to give the earliest tidings of the advance of hostile Indians. There are, of course, all round about wide patches of beautiful woodland country, while at our feet were the busy business thoroughfares and the shafts of hundreds of rapidly-extending factories and workshops, with here and there a towering grain elevator to emphasise the fact that amidst all her polyglot industries the grain trade occupies an all-important position in Montreal.

There is, of course, no lack of places of interest for visitors to inspect. There are, for example, the famous Lachine Falls, which the visitor can "shoot" in steamers piloted by genuine Redskins. Navigation thereabouts appears to be very difficult and dangerous, too, as the vessels pass within a foot or two of the most turbulent water and as cruel-looking rocks as one could possibly

encounter. The beautiful countryside, moreover, all round about offers plenty of scope for agreeable outings. I should not omit mention, by the way, of the St. James's Club, one of the best in Canada. The members seem to be thoroughly good fellows, who delight in entertaining right hospitably the "stranger within their gates." Personally I left Montreal with great regret, as I made hosts of friends, and the whole atmosphere of the city seemed kindly.

But, as a last word on Montreal, some special reference, I think, is due to that excellent institution to which I have already made passing allusion, the Montreal Stock Exchange. Housed in one of the most noteworthy of the many elaborate public buildings of Montreal, its functions exercise an all-pervading influence upon the commercial and industrial interests of the entire Dominion. Its incorporation dates back to the year 1874, and a retrospective glance over half a century would indicate that the brokers of Montreal were at that time wont to meet once a week at an office appointed for the purpose to purchase and sell securities for their clients, and to agree as to the figures to be placed in their official price list, which was circulated chiefly outside the Dominion. As time went on the meetings were held at shorter intervals than a week, and this continued until 1874, when a number of representative brokers secured for themselves incorporation as Charter Members of the Montreal Stock Exchange.

For a number of years the permanent office of the stockbrokers was an unpretentious room in an old building in St. Francois Xavier Street, and then, in 1887, a move was made to more extensive premises, which were only vacated in 1904 in favour of the handsome structure in which the Montreal stockbrokers now find their permanent home. The membership of the Montreal Stock Exchange now numbers fifty-five gentlemen, and the governing body have the power at their disposal to increase the membership to sixty as soon as the demand for additional "seats" may justify them in the sale of the remaining five.

Some idea of the progress of, and also of the fluctuations in, the business transacted through the instrumentality of the Montreal Stock Exchange, and of the Clearing House, which was established in connection with the Exchange in 1884, may be gathered from the following figures, which represent the cash balances paid into the Clearing House against the delivery of securities:—

| | | | | | | | | Dollars. |
|------|----|----|----|----|----|----|----|---------------|
| 1886 | .. | .. | .. | .. | .. | .. | .. | 22,073,972.32 |
| 1896 | .. | .. | .. | .. | .. | .. | .. | 14,551,802.63 |
| 1902 | .. | .. | .. | .. | .. | .. | .. | 61,519,531.34 |

For the year ending May, 1904, the balance was 31,238,675.12 dollars. These last figures represent, of course, a rather serious

decline in the volume of business transacted, but is capable of explanation when it is remembered that the year in question was characterised by the most acute depression ever known to the members of the Montreal Stock Exchange. Since 1904 the advances made have been more tangible, and the Stock Exchange not only to-day reflects the prosperity which is characteristic of Canadian trade and industry at present, but it is sharing therein.

The members of the Montreal Stock Exchange may, under existing circumstances, be regarded as justified in the optimistic view which they take of Canadian prospects, and an official pronouncement issued on their behalf contains the following statement :—" This country is just beginning to develop its resources, and is likely to be the attraction for emigrants from abroad until such time as most of the available land is taken up. The tide of immigration which has in the past been directed to our neighbours to the south of us is now to a great extent coming our way, and the country must make great strides in the next few years. The members of the Montreal Stock Exchange, having confidence in the growth of the commercial centre of Canada, have signified their faith in the future of their country by erecting a modern structure, architecturally pleasing to the eye, and of sufficient size to accommodate 200 members."

I should, before leaving the Province of Quebec, glance in the briefest way at some of the smaller cities and towns, other than Quebec and Montreal. On the score of population, St. Henri followed next after Montreal and Quebec at the census of 1901, having a population of 21,192. Other towns of importance are Hull, with important pulp and paper-making interests, and a population of somewhere about 15,000 ; Sherbrooke, a busy town of 12,000, which is in the centre of the Eastern Townships. That district has magnificent agricultural resources, and, when this part of Quebec attained a good deal of importance in this respect, Sherbrooke became prominent. Amongst other towns which thrive in their various ways are Richmond, Ste. Cunegonde, St. Hyacinthe, Shawinigan and Valleyfield—and I might name a good many more flourishing towns with increasing populations and industrial and agricultural prosperity without exhausting the list.

CONCLUSIONS :

That the Cities of Eastern Canada are characteristic of the spirit which dominates the Canadians to-day.

That Quebec has great industrial and maritime possibilities at its disposal, and evidences are not wanting of a disposition to develop them.

CONCLUSIONS (*continued*) :

That Montreal is an amazingly prosperous city, abounding in wealth and enterprise.

That its municipal and commercial future is safe in the hands of its vigorous-minded and optimistic citizens.

That there are, besides, numerous rising towns in the Province of Quebec which are rapidly progressive in all that pertains to their substantial material development.

CHAPTER II.

OTTAWA AND TORONTO.—HALIFAX AND ST. JOHN.

OTTAWA : THE CAPITAL OF THE DOMINION.—ITS GREAT LUMBER INDUSTRY.—TORONTO THE MOST BRITISH-LIKE CITY IN CANADA.—THE RISING TOWNS OF ONTARIO.—HALIFAX AND ST. JOHN, THE CANADIAN WINTER PORTS.

MY survey now takes me over the borderland of Quebec, and I come to deal in the briefest way with Ottawa, the capital of the Dominion of Canada. Briefly, I should say, by force of circumstances rather than of inclination, for my arrangements when in Canada, and the necessarily-restricted period over which my trip extended, permitted me no time in which to visit the many features of interest in which the city and its neighbourhood abound. But it would be an omission for which I would not care to assume responsibility were I to ignore Ottawa, even if that were possible : one might as well presume to enjoy "Hamlet" *minus* the moody Prince himself. And there is such a variety of attraction in and about Ottawa that it was with regret that I had to leave so much unseen.

The principal factors which dominate life in Ottawa are political, episcopal and academic, *plus* the lumber industry, of which the city is one of the chief centres in Ontario, or, indeed, in Canada. It is a very large *plus* too, for I forget the number of hundreds of millions of feet of lumber that are sawn up in the district of which Ottawa is the centre, and the Ottawa River and the Rideau—at the confluence of which rivers, 120 miles westwards of Montreal, the city is situated—are the principal streams.

Ottawa dates back to 1829, and was incorporated as a city in 1855. It was selected by Queen Victoria to be the capital city of the then two Canadas of Quebec and Ontario—for those were pre-Dominion times—forty-nine years ago. The city is full of interest, historical and otherwise, and much that is picturesque adds a spectacular element to a visitor's survey. The Houses of Parliament present a superb structure in the Italian Gothic style, and are situated on an eminence overlooking the river. Adjoining them are the Government Buildings, and the whole is dominated by Victoria Tower. Ottawa, too, is an

important seat of learning and a leading centre of Canadian culture.

The city, and the industrial establishments in its neighbourhood, derive electrical power from the famous Chaudière and the Rideau Falls. Sawmills abound, and there are also flourmills, leather works, match factories and other thriving manufacturing establishments, but from a commercial point of view the lumber interests dominate all the others, and represent the characteristic industrial feature of the neighbourhood.

Unquestionably, Ottawa is one of the best-built cities in the Dominion. It is beautifully situated on the banks of the noble Ottawa River. The surrounding country is delightfully picturesque, the Chaudière Falls being exceptionally beautiful. The population of the city itself has been steadily increasing, owing largely to the rapid growth of the *personnel* of the Civil Service and the general development of its manufacturing and other interests. On the other side of the river is the prosperous town of Hull, already named, wherein wood-pulp manufacture and paper-making are leading interests. Altogether, Ottawa is a city to be seen, and one to regret not to have been able adequately to "do."

The cities of Canada are remarkable for their diversity of general character. Quebec and Montreal are as unlike each other as they well could be. A similar remark applies in equal measure to Ottawa and Toronto. Both cities impress the visitor favourably, but in wholly different ways. Toronto has an individuality entirely its own. The French element is much less in evidence in Ontario than in Quebec, and this materially affects the aspects of the cities. The British visitor feels at home in Toronto almost at once, and still Toronto is probably the most "Americanised" of Canadian cities. It is a beautiful city, with a vast amount of elbow-room. They plan their architecture and their disposition of thoroughfares and public places on expansive principles, and there is no overcrowding or congestion in the matter of streets and buildings. It is, indeed, in many respects a veritable garden city, with abundant greenery in evidence to contrast with and embellish the handsome public structures, for, in truth, I doubt if any city on the American continent can boast more beautiful examples of varied architecture than Toronto.

I was told that the city had nearly 300 miles of streets. I could quite believe it, and I am quite sure that it has more churches, hotels and public buildings to the square mile than any city I have visited of its size and population. I believe, too, its population, which was over 208,000 in 1901, will be well over the other side of a quarter of a million by now. Toronto, like

the other chief Canadian cities, is strong in universities, theological halls, schools, asylums, hospitals, libraries, orphanages and other public establishments. The City Hall and the Law Courts are amongst the architectural "lions" of the city, and the Anglican, Metropolitan, Methodist and Roman Catholic cathedrals possess many features of interest other than those which are strictly ecclesiastical. Toronto is the headquarters of that



A STREET SCENE IN TORONTO.

wonderful progressive institution, the Canadian Bank of Commerce. Its chief office is in one of the fine old buildings in the main thoroughfare, but its branches, which meet one in every quarter of the city, are all modern edifices of considerable architectural pretensions.

Amongst the many fine thoroughfares of the city, Yonge Street takes the palm, but the suburban districts are beautifully laid out with avenues of trees, and with houses more like the

bungalows met with on the banks of the Thames than anything else with which I can compare them. The gardens are beautifully kept and the roads immaculately clean. In fact, whether one considers the business part of the town, with its splendid offices and public buildings, and shops such as would do credit to Oxford Street, or the suburbs and residential districts, or, again, the busy manufacturing neighbourhoods, they are all in their ways intensely interesting, Toronto being a superb example of what Canada has been able to do with her native enterprise and her as yet only partially-developed resources in the matter of city-building. Means of locomotion are easy and abundant throughout Toronto; there is a splendid service of electric tramcars, and power to run these, and also to work the electric lighting of the city, is obtained from Niagara Falls, eighty miles away.

Toronto is nothing if not busy and prosperous as a manufacturing city. It has numerous engineering and agricultural implement works, foundries, tanneries, soap works, packeries, breweries, a distillery, and quite a number of other industries. In fact, some enthusiastic statistician has put down the number of individual industries in Toronto at six hundred. Probably this may be near the mark, taking in the large and small, and if one also takes in a radius of a few miles from the city, one finds within its area a large number of the most important industrial establishments in Canada, some of which are the largest of their kind on the American continent. The works of the Massey-Harris Company and of the Canada Foundry, Limited, may be mentioned amongst the number as cases in point, and elsewhere I describe them.

Eminently a progressive business city, it would be difficult to estimate its future possibilities. It has a fine harbour on Lake Ontario, on which it has a beautiful situation, and it does a shipping trade aggregating over eight millions annually. The advances made by Toronto within the past quarter of a century have been remarkable. It was a quiet place in its earlier years, for it was founded so long ago as 1794, while three years later it became the capital of the Province of Ontario, which it has continued to be ever since, with immense advantage to the province and its own populace.

Other cities and rising towns of Ontario there are in plenty. After Toronto and Ottawa, Hamilton takes first place in population and importance. It is situated in the beautiful and fertile garden district of Canada, which stretches along the shore of Lake Ontario. But mineral resources also abound in the district, of which, with its population of 53,000 in 1901, it is the principal centre. It is a busy place, with great possibilities for future advancement.

Another prosperous place is London, which bears a name which should at least be a fortunate mascot. It has a population of about 40,000. Then there are busy Brantford, Guelph, Peterborough, Saulte Ste. Marie—full of prospects and industrial potentialities—Fort William and Port Arthur further west, and a host more places rapidly growing in population and agricultural and industrial prosperity, and ranging in populations now from 3,000 to 10,000 and 12,000—all more or less promising contributories to the coming greatness of Canada. Such highly-mineralised districts as Cobalt will sooner or later become great centres of population and activity, unless all calculations are hopelessly wide of the mark.

Having now briefly surveyed the principal cities of the Provinces of Quebec and Ontario, I think it right, before proceeding to those of the Western Provinces, to glance briefly at the cities of Halifax, Nova Scotia, and St. John, New Brunswick. These cities were pioneer centres in the early days of Canadian activity, and, although my visit to the Dominion did not place me in a position to inspect them as I should like to have done, still I obtained much interesting information regarding them.

The city of Halifax had a population in 1901 of over 40,000, and is the principal seaport, although by no means the only one of importance, in Nova Scotia. It has a fine sea frontage to Chebucto Bay, with abundant maritime resources. Halifax also enjoys the important advantage of being the Atlantic terminus of the Inter-Colonial Railway of Canada. From the middle or end of November until the middle of April the Transatlantic steamships between Great Britain and Canada land their passengers at Halifax or St. John, which are the Canadian winter ports for ocean travel and transport, and from these cities passengers proceed by rail to Quebec and Montreal, or further west, according to their precise destination.

These circumstances add materially to the trade of the two cities during a period when the navigation of the St. Lawrence is closed. Altogether Halifax does a large shipping trade, the total value of which amounted in 1904 to £1,840,650, while its import trade for the same year totalled up to £1,693,212. I refer in other chapters so fully to the principal industrial resources of Nova Scotia that I need only add here that various industries are carried on in the city, sugar-refining and shipbuilding amongst the rest, while the town receives immense benefit from the important iron and steel making, coal-mining, and agricultural, lumber, fruit-growing, fishery and other allied industries which are carried on in various parts of the province, notably at Sydney, New Glasgow, Pictou, Amherst and Yarmouth. The residential suburb of Halifax is Dartmouth. Nova Scotia, which had its

record trade year in 1906, is full of the enthusiasm and enterprise which make for further advancement.

St. John, New Brunswick, like Halifax, Nova Scotia, is, as I have mentioned, one of the winter ports of Canada, and is conveniently situated at the mouth of St. John River. It had a population of something over 40,000 at the census of 1901. It is connected with Quebec and Ontario by means of the Canadian Pacific Railway and the Inter-Colonial system, while the new railway developments identified with the opening up of the Grand Trunk Pacific Railway will be of immense consequence to the material prosperity of New Brunswick, as my article dealing with that enterprise makes plain. The actual settlement of St. John dates back from 1635, and in 1654 the British captured the fort, although nothing like a permanent settlement on a Colonial basis was made until 1758.

The modern town of St. John has several handsome buildings, and I am assured by those who know it well that it is one of the most pleasant in Canada in which to reside. It has a fine harbour, and a large shipping trade is carried on, for which the agricultural, lumber, fruit-growing, mineral, fishery and other resources of the province provide the material so far as exports are concerned, though this volume of trade is greatly augmented by that which comes from the Canada that is further afield.

Other towns in New Brunswick are Fredericton, the capital of the Province, Moncton—which will become an important railway centre as an Atlantic terminal in connection with the Grand Trunk Pacific system—Chatham and Woodstock. The capital of Prince Edward Island is Charlottetown, with a population of over 12,000.

CONCLUSIONS :

That the cities of Ontario, though differing in many respects from those of the sister Province of Quebec, are equally characteristically Canadian.

That Ottawa, though essentially a centre of political and academic life, possesses in its lumber industry an asset of ever-increasing commercial significance.

That Toronto is a splendid business city, full of enthusiasm, enterprise and municipal modernity.

That Halifax and St. John are prosperous ports with increasing industries, which promise well for the future.

CHAPTER III.

WINNIPEG AND VANCOUVER.

WINNIPEG ONE OF THE MUNICIPAL WONDERS OF THE WORLD
AND A REVELATION TO THE BRITISHER.—WINNIPEG “THE
CHICAGO OF CANADA” AND THE “GATEWAY OF THE WEST.”
—VANCOUVER A BEAUTIFUL CITY AND MAGNIFICENT PORT,
FULL OF GREAT POTENTIALITIES.

HAVING in previous chapters dealt with the Canadian cities of the East, I now come to survey the Canadian cities of the West. And what a survey! Where, I ask, can anything be seen like it? In virility, apparent vitality, potential actuality—when one considers their genesis, and the remarkably active growth they have exhibited from their origin under stunted and, more frequently than not, unpropitious circumstances? Where in the British Colonies, or elsewhere, are we to look for their equal? From a few years ago a wilderness of boundless prairie land, or—from the point of view of modern exploitation—equally unpromising forest-grown country, there has arisen an array of promising cities and townships, the future of which it would be hard to foretell.

Of mushroom growth, it may be said, many of these are, but even mushroom growth has its graduations, and a robust municipal community which uprises from a well-cleared country, possessing a fertile soil of proved agricultural value, and of admittedly great future potentialities, cannot be placed in the same category as a place which rises from a swamp in response to the wand of the money-wizard or the mere speculator. Canada and her rising municipalities can afford to dispense with the latter. It is on this assumption that I propose to deal briefly with the cities of the Canadian West.

After leaving Port Arthur or Fort William on the journey Pacific-wards, it is not long before the traveller realises that he is really in the Great West. The sense of distance, always great in Canada, impresses itself with almost limitless emphasis on the mind as one careers in the fast express across miles and miles of prairie and forest-bound land, here and there opened out and settled upon, but more often than not awaiting the all-important metamorphoses of the lumberman or the plough. It is, as the showman would say, something that must be seen to be realised. To tell the truth, that was my impression as I was carried along

over the fine permanent way of the railway track *en route* for Winnipeg.

And what a wonderful place this same Winnipeg is! It is a revelation to the Britisher. It cannot be described as beautiful, or even picturesque, in the ordinary sense of these terms, but it has a new-world spectacular charm of its own which is hardly to be met with, I should think, elsewhere. It has been aptly described as "the Chicago of Canada," and I do not think that any appellation could suit it better. It is an infant Chicago in the sense that it seems to have copied its love of growth from that great American city. It swears by bigness, and big it must be at all hazards. Its development during the little more than a quarter of a century of its existence has been phenomenal. Prior to the advent of the Canadian Pacific Railway, in the eighties, the only means of visiting the city was by the Red River or by prairie trails. In 1887 it had a population of less than 10,000, and now it can boast its more than 100,000 souls.

Moreover, this growth has seen its greatest advancement of quite recent years, because, although it was always a progressive city, it has been moving forward latterly by leaps and bounds, to keep in accord with which the resources of the West have at times been severely strained. But it has come out of the ordeal triumphantly, and there is no getting away from the fact that it is a splendid exemplification of modern Canadian strenuousness and resource, of indomitable perseverance against many odds, and at the same time of an extraordinary capacity for accommodating itself to the conditions of a situation which were at once difficult to reconcile and unapproachably fertile in their possibilities.

It has been said that one has only to shut one's eyes, sneeze, and open them again, to find that Winnipeg has grown bigger. That is just the feeling that seems to characterise everything and everybody in and round about Winnipeg. Growth, advancement, prosperity—these are the dominant notes of the Winnipeg of to-day, and yet there is no city in the world to which the captious critic might more readily take exception in some particulars. Winnipeg is essentially a city in transition. "The Gateway of the West," it still in some places seems to suggest the old Fort Garry, which was its immediate lineal predecessor—the unpretentious camp, suitably fenced round to ward off the attacks of hostile Indians, while all round about was prairie, prairie, prairie!

Yet, with that strange inconsequence which one meets everywhere in the West, but nowhere more so than in Winnipeg, this growing city possesses "sky-scrapers" which can rival many of those of New York and Chicago, and these gigantic structures

overshadow miserable shanties, and jostle against dwarfed buildings little better than log cabins, which incongruities perpetuate one of the strange elements which seem in Winnipeg to cement the older Western life to that of the newer and more strenuous times. To the reflective mind the whole scene presents a remarkable metamorphosis, for all the land which now represents a great and phenomenally-increasing city was a little over thirty years ago a boundless tract of prairie land, tenanted for the most part by nomadic Indians and herds of buffalo.

I doubt whether on the whole of the American Continent there are finer blocks of warehouses or broader avenues. What I will call the new part of the town has been laid out as a veritable garden city, and in the not very distant future, when the appearance of newness has worn off and the trees which have been planted with luxuriant plentifulness have had time to mature, the Western residential suburb should be a source of pride to the inhabitants.

But great as the position of Winnipeg is as a Canadian city *per se*, its potentialities are greater as the aforesaid "Gateway of the West," and as the mammoth distributing centre *in posse* of the North-Western Provinces of Canada. There are some in the West who say that Winnipeg is too far East, and perhaps it is in some respects for the very West; but just as the further western interests are increasing, so also are the nearer western interests of which Winnipeg is the natural centre. The fact that Saskatchewan and Alberta are being rapidly developed does not mean that the greater population of Manitoba is neglecting its material interests or its natural agricultural and industrial destinies, and these, which know no limit as yet, are sufficiently great to assure the future prosperity of Winnipeg as its metropolis for an indefinite period, and still leave Saskatchewan and Alberta free to develop their own immense internal resources.

Looking at Winnipeg as the visitor sees it to-day, he must be a dullard indeed who finds his intelligence unthrilled by the splendid results of a quarter of a century's growth—thoroughfares which, transitional as many of them may still be, are in many respects noteworthy as masterpieces of municipal engineering conducted under the most difficult circumstances. Public buildings there are, notably the City Hall, which in architectural magnificence and modern appointments will equal any to be found on the American continent; municipal resources in electrical and a hundred and one other ways, conspicuously emphasised, are amongst the resources of civilisation which Winnipeg presents to-day. Its business offices, its best hotels, its banking institutions and public offices, its markets, its civic institutions, and the boundless optimism of its inhabitants are

all assets in the great march for wealth and prosperity which seem to be the main factors in shaping the destinies of Winnipeg.

Emphatically, Winnipeg is a city that every Empire-loving Britisher should see. Some parts of it I have seen as lively as if I were within a quarter of a mile radius of the Bank of England at home—everything teeming with suggestions of wealth, virility,



THE CITY HALL, WINNIPEG.

purpose and enterprise. At night some of its thoroughfares are as gay and festive as Oxford Street and the Strand ; *per contra*, some were as dim and miry as the purlieus of the New Cut or Bermondsey, for Winnipeg, like other cities, has its seamy side. But every great city is a city of contrasts, and Winnipeg would be alien to tradition if, in its early growth, it were otherwise. Yet, odd as it may seem, I question whether there is a more law-abiding city in the universe than Winnipeg. For a time I began to think it was without police at all, they were so little in evidence.

To do justice to Winnipeg in a short sketch like this is impossible, and I do not propose to attempt it. This chapter amounts to merely an aggregation of so many panoramic impressions, of which the chief seem to resolve themselves into a sense of the ungovernable enthusiasm which prevails everywhere, endless optimism, ceaseless enterprise and immense resource. Winnipeg is not a Montreal or a Toronto, full of ripe achievement in a municipal and commercial sense, or a Quebec, rich in historic memories—Winnipeg is a great city in its robust infancy: a modern Babylon—shall I say, in the most reverential and commendatory sense of the term?—in the making.

My space leaves me with but little accommodation into which



DRAUGHT OXEN IN THE MARKET AT WINNIPEG.

to compress what would easily fill columns. But the name and connections of Winnipeg crop up so often in this volume that I must content myself by saying that, as a city pure and simple, it impresses one with the multiplicity of its imposing churches, its important colleges, its improving hotels—the last, by the way, not a strong point of the West, but the Canadian Pacific Company's hotel is an exception, capably managed, as it is, by an Englishman—its electrical tramway system, its grain elevators, stockyards and abattoirs, the immensity of its railway resources and convergencies, and its manifold resources in commercial institutions. Why, the Canadian Pacific Railway alone has a hundred miles of track worked up into sidings! Of all these growing immensities, what can one in my position say, except a word of regret that one is deficient alike in the pen of a Balzac

or a Sala to describe them with felicity, and in the space of volumes to record them? And here I should say that this city is the headquarters of that wonderful organisation, the Hudson's Bay Company. Fort Garry was originally a Hudson's Bay post, and the remains of the fort are still objects of interest to visitors.

There is no element in the business life of Winnipeg that does not seem to be going ahead on triple-expansion principles. Several banking companies reared palatial new premises last year at the rate of £40,000 apiece, and thought nothing of it; and the Canadian Bank of Commerce alone has as many as nine offices in the city. Its head Winnipeg office is a splendid edifice, and is well worth an inspection. Moreover, I am told, since my return home, that more than thirty new industrial establishments have been built during the past twelve months, and, needless to say, shops and commercial offices opened galore. At the present time the Canadian Pacific Railway and the Canadian Northern Railway pass through the city, and before very long the Grand Trunk Pacific Railway will arrive on its way to the coast. Arrangements have been made between this company and the Canadian Northern for the erection of a huge joint station, and there is also, I understand, a scheme for the erection of a mammoth hotel by these companies. Indeed, in every direction—ecclesiastical, charitable, educational, financial, commercial and industrial—Winnipeg has veritably been “going the whole hog” in 1906, making it what was, I believe, a record year in the history of a triumphantly prosperous city. *Floreat Winnipeg!*

And now away, westward still, over seemingly endless prairie lands, which have a charm as well as, be it admitted, a monotony all their own—away upwards, winding round seemingly impossible mountain passes and over startling gradients until the Rocky Mountains are successfully negotiated, and Nature's most wonderful eccentricities in cañons and valleys and grim, forest-treed gullies are skirted or pierced, as modern railway engineering has decreed in the interests of civilisation and progress they should be, until ultimately Vancouver, on the Pacific—the veritable Pacific, abutting upon the “Ultima Thule” of so many of our imaginings—is reached.

Needless to state, Vancouver is a magnificent port, that it is the point of departure of the splendid steamers of the Canadian Pacific Railway Company, and that its commercial possibilities are almost incalculable. Here is to be seen another civic creation of a couple of decades. I believe that if I were to say that twenty years ago there was no city of Vancouver, and only the island of the same name to answer to the geographical description, I should be about right. At all events, Vancouver stands to-day for Pacific Coast modernity, alike in municipal, social and

commercial aspects. No visitor, I am assured, can fail to be impressed with its beauty of situation and aspect, the activity of its life and interests, and, for Canada, its cosmopolitan characteristics, which are remarkable for a place of its size and population.

But Vancouver is just one more of the great coming cities of Canada. British Columbia will be a great factor in the future industrial well-being of our Empire, and in business Vancouver leads in the great Pacific province. With prosperous sawmills, salmon canneries, halibut fisheries, mining interests, fruit-growing and agricultural industries all recognising it as their natural commercial metropolis and distributing centre, the future of Vancouver is assured. The city has a splendid service of electric trams and electric light supplied by the British Columbia Electric Railway Company. For the rest, I can only add that Vancouver, with its more than 40,000 inhabitants, has some pretentious buildings, splendid shops and business premises, and many delightful houses.

These remarks, I understand, apply with equal measure to Victoria, the capital of the province, which time did not permit me to visit. Victoria, however, very much the senior of Vancouver, is essentially political, academic and residential in character, whereas in Vancouver the atmosphere spells Business, with a very large B. Vancouver means to be the Canadian San Francisco of the future, and, unless all portents are devoid of significance, this desire will be realised. In a word : Vancouver is a city to be seen and cultivated. Like the delightful province of British Columbia, it has an element of charm which is all its own.

CONCLUSIONS :

That Winnipeg promises to be the Chicago of Canada, and is making remarkable headway, having in a quarter of a century of existence obtained a population of over 100,000 souls.

That as the Gateway of the Great West it has become of vast consequence as a distributing centre for the produce of the North-Western Provinces of Canada.

That the future of Vancouver is of the most promising description, its development being mainly coincidental with that of the resources and enterprise of British Columbia, which have never reached such a high-water mark as is the case to-day.

CHAPTER IV.

EDMONTON AND CALGARY, AND THE RISING CITIES OF THE NORTH-WEST.

THE PHENOMENALLY RAPID GROWTH OF EDMONTON.—SOME OF THE CAUSES OF IT.—EDMONTON AS A RAILWAY CENTRE.—CALGARY THE LARGEST CITY IN ALBERTA.—AN ENORMOUS IMMIGRATION.—THE RIVALRY BETWEEN EDMONTON AND CALGARY.—THE WINTER IN ALBERTA.—THE EMBRYO CITIES OF THE NORTH-WEST.

I HAD the pleasure of visiting Edmonton and Calgary during my tour of the West. My stay, unfortunately, in both these rising communities was very short. I was, however, greatly impressed by many indications of the prosperity of the inhabitants, and by the wonderful evidences abounding on all sides of the progress both cities are making.

At the beginning of 1906 Edmonton was described as a city of 12,000 people. Now it may be 14,000, or even 15,000. But to describe it as merely a city of 15,000 population is to give a poor idea—even no idea at all—of what Edmonton, the capital of the huge province of Alberta, really is. In 1901 Alberta had a population of 65,876 and Edmonton 1,200. The province is now estimated to have considerably over 300,000 inhabitants. Both province and city are growing at such a rate that the people on the spot are dazzled with the perspective of their own greatness in a future near enough at hand to throw its glamour over the present.

A glance at the map suffices to show at least one good reason why Edmonton was selected as the capital. It is planted on the banks of the North Saskatchewan River, at a spot where it is very central in relation to a vast tract of fertile country, and is already a distributing centre for over 300,000 square miles of productive territory. It is this, and the unsurpassed fertility of the province, together with the fact that coal has been found in the vicinity and is believed to exist in inexhaustible quantities, which constitute the importance, and will ensure the future greatness, of the city.

A few words as to the character of Alberta are necessary here to give a true conception of Edmonton, and these remarks may be taken as supplementary to others in various chapters, which deal more particularly with the relationship of Alberta to particular interests or industries. Recently constituted a Province—in September of 1905—it is claimed that none other in the Dominion has had such a remarkable growth during the past decade, and that no other Canadian Province or State of the American Union, has such magnificent possibilities for future development as the Province of Alberta. It is pointed out with pride that it is big enough to accommodate the entire population of the United States without undue crowding, and fertile enough to supply the American Union with all its foodstuffs, and that without exhausting its marvellous resources.

Again, Alberta is so situated within the range of warm winds from the Pacific that, although a portion of it is so much further North than most of the older and settled parts of Canada, its winters are comparatively mild, most of the prairie lands having a covering of only a few inches of snow in an average winter. It has, it is claimed, more wheatlands than Minnesota and the Dakotas, more oats and flax lands than Illinois, Iowa and Nebraska, as large coal areas as Pennsylvania, as extensive cattle and sheep ranges as Texas, more railways under construction, more rich, black, loamy soil than any State in the American Union. It has no cyclones, tornadoes, nor earthquakes, and nothing in the way of blizzards of any importance to either farmer or townsman. It is an ideal agricultural and ranching country, which is another way of saying that it is an ideal region for the Anglo-Saxon race to occupy, and to develop, in which to lead thoroughly healthy and prosperous lives, winning a bounteous return from Nature for their labour and enterprise. Such is the region of which Edmonton is the capital city.

I have spoken of the Alberta coal deposits, which are also referred to in another chapter. Close to Edmonton there are coal mines which, I am assured, are being worked to the full limit of their present capacity supplying coal for domestic purposes, not only, it seems for Edmonton and the surrounding country, but as an esteemed correspondent has informed me since my return, for “shipment”—a Colonial term not used in this country in quite the same sense—to Calgary, Lloydminster, Saskatoon, and, in fact, almost any point to which the railways are able to transport it. “No later ago than yesterday an Edmonton operator informed me that he had 10 cars loaded waiting for shipment to Calgary. This coal was entirely intended for domestic use in ordinary stoves.” I am further informed by my correspondent that at various periods of his life he has “used

Pennsylvania anthracite and bituminous, as well as Nova Scotia bituminous coal, and am quite familiar with all three. I have no hesitation whatever in saying that for domestic purposes the Edmonton coal is very much preferable. It also gives exceedingly satisfactory results for stationary steam purposes, but it has not been found as desirable for locomotive use as other coal. It has, however, been successfully used by the Canadian Northern Railway at times when other coal could not be procured."

It is, however, the fact that the coal in question is suitable for industrial purposes that gives the mineral deposits a special importance as an asset to Edmonton. In this way it will play an immense part in the future industrial history of the North-West. It is, indeed, in its aspect as a prospective manufacturing city of the first rank that citizens of Edmonton specially take delight. It will not only have cheap coal—for the mines are worked very easily, the coal being near the surface—but it will have abundance of water-power at its very doors. This, in conjunction with its advantageous geographical position, will place it in a most commanding and enviable situation as a great industrial centre of the future.

And here it may be noted that the opportunities for manufacturers to establish themselves at Edmonton are not likely to be neglected. Already there are quite a number of solidly-built premises where manufactures in a moderately large way are being carried on, and there are many miscellaneous handicrafts being followed which will grow with the city. As an indication of the confidence felt in the future, it may be mentioned that the Hudson's Bay Company's store is a great three-storey block of buildings which would adorn any business thoroughfare in London. It is a substantially-built, handsome warehouse, thoroughly worthy of its proprietors.

Another great factor in the future development of Edmonton is the excellence of its climate. It is difficult to say which of the two seasons, summer or winter, in Edmonton is most pleasurable to the average Englishman. July, August and September can be depended upon to bring plenty of sunshine. July, I am told, is rainy, sometimes for many days continuously, but August and September are warm, with the sun shining all day, while the nights are deliciously cool. The weather at that period is so steady that no fears need ever be entertained as to the ripening of the crops. No ill-timed spells of wet cold come along, as in the British Isles. The sunshine is an every-day and all-day visitor, who can be relied upon.

Eventually the neighbourhood of the city will be capable, it is believed, of producing almost every variety of crop that is known in England, besides others which are not ; but the great

staple of the immediate future, as it is of the present, will be winter wheat. The area under this crop is increasing, as I state in another chapter, by thousands of acres every season, and next fall the railways will have an uncommonly busy time in carrying it to market. For every farm in the district, Edmonton will be the natural and inevitable centre of gravity, and in the winter—clear, cold, dry, exhilarating Canadian winter—it will also be the centre of merriment and reunion.

Edmonton, like all the new cities of Canada, is built largely of wood. This is a necessity of their origin. The pioneers have no time to put up anything more substantial. Besides which, where the houses and buildings are not so crowded that the danger of a general conflagration is great, a wooden house, well built and equipped, is an admirable dwelling-place in both summer and winter. Now, however, there are a great many brick and stone residences, public buildings, banks, schools, and so forth, which are giving a more mature and substantial appearance to the streets.

Great, too, promises to be the future of Edmonton as a railway centre. No less than three transcontinental railways will shortly run through Edmonton, and to a great extent make it their objective. With these magnificent transport facilities, bringing the city into touch with all parts of the Dominion, there cannot be a doubt that the commercial progress of Edmonton will be something conspicuous, even for North America. The most roseate anticipations are being nursed as to the future of Edmonton when it attains direct railway communication with the Pacific Coast, with the consequent opening up of trade with fresh and unlimited markets beyond the seas.

And now I come to the city of Calgary, one of the financial and wholesale distributing centres of Alberta and the largest city in the Province. It is claimed to have a population of 17,500—which figures the good people of Edmonton vigorously question—and these figures, it is stated, are rapidly increasing. Calgary is situated at the confluence of the Bow and Elbow Rivers, about 70 miles east of the Rocky Mountains. The city is built principally of sandstone, and building operations in 1904 and 1905 involved an expenditure of over 1,125,000 dollars each year. Calgary is the general superintendent's headquarters for the Western Division of the Canadian Pacific Railway system, and is on the main line of the Canadian Pacific Railway at the junction of the lines connecting Macleod and Edmonton. The pay-roll of this company at Calgary reaches the substantial sum of 1,000,000 dollars annually. This represents the employment of between 900 and 1,000 men in Calgary and district. This number of men with their families and dependents will alone represent a population of 3,000 or 4,000 people residing in Calgary.

It is probably as a distributing centre, as I have indicated in another chapter, that Calgary derives its chief commercial importance. Its wholesalers do business well into the Province of British Columbia, supplying many of the mining towns of the West, while a general distributing business is now being done to the whole of Alberta and the Kootenay district. A large number of Eastern houses in various lines of business represented at Winnipeg and Vancouver have come to the conclusion that the Western field cannot be successfully covered from these two points, and have found it in their interests to open up in Calgary. They



A STREET IN CALGARY.

are now erecting extensive stone warehouses there, from which the area between Swift Current and Revelstoke and Edmonton and Kootenay Landing is being supplied. I was informed that a readjustment of railway rates out of Calgary was made during 1903, which has had the effect of making Calgary one of the main distributing centres between Winnipeg and the coast.

It is a healthy sign in rising communities when they exhibit a sense of friendly rivalry in material things, and this was obvious to me when I saw that a lively competitive feeling exists between the two important centres of population and activity in Alberta. The publication of the principal contents of this chapter in its original and unrevised form in *The Financier* early this year brought from Mr. F. T. Fisher, Secretary to the Edmonton Board

of Trade, and consequently in a measure the official spokesman of Alberta's capital, a letter, to which publicity was given *in extenso* in the columns of *The Financier*, which showed that Edmonton does not see altogether eye to eye with Calgary. I cannot reproduce the whole of the letter in these pages but one or two representative passages will, perhaps, be interesting, as showing the healthy spirit of competition which prevails between the two cities.

The population question is a vexed question. Calgary claimed to have a population, as I have said, of 17,500, which was rapidly increasing. On this point Mr. Fisher writes: "For some reason which is somewhat difficult to explain, the residents of Calgary absolutely ignore the census very carefully taken by the Dominion Government in June last, except to the extent of having reduced their estimate of the population from 20,000, which figure they used previous to the publication of the census figures, to 17,500. The actual figure, as shown by the census, however, is 11,937, as compared with 11,534 as shown for Edmonton. In both cases this is exclusive of three or four thousand in adjoining districts, but outside the city limits."

Then another sore point is the Calgary claim as to a readjustment of railway rates out of that city having had the effect of making it one of the main distributing centres between Winnipeg and the Pacific Coast. On this subject Mr. Fisher writes: "The impression created that Calgary is the only wholesale point in the Province of any importance would have been perfectly accurate three or four years ago. Up to the close of 1905 Edmonton had no direct railway communication, and every pound of freight and every passenger that came to Edmonton had to come through Calgary; consequently Edmonton was at a great disadvantage as a distributing centre as compared with Calgary, and this was a condition that had prevailed for many years.

"For many years after Calgary was established Edmonton had no railway at all, and the only communication over the intervening 200 miles was by horse or ox teams. Naturally, these circumstances gave Calgary an enormous and somewhat fictitious advantage, and it soon came to be recognised as the commercial centre of the Alberta country. This was also recognised by the Canadian Pacific Railway Company, who during 1903, as stated, made very favourable distributing rates into and out of Calgary, which placed Calgary at a still further advantage as compared with any other point which might develop into a competing centre. Since that time, however, these conditions have been entirely changed. Towards the end of 1905 Edmonton got a direct line of railway, and Edmonton at once became a

competing point as regards transportation, which Calgary has not yet become. The result of this was that freight and passenger rates to Edmonton at once became the same as to Calgary, even if such traffic might be handled by the Canadian Pacific Railway.

"A new adjustment of distributing rates was made, and Edmonton now receives exactly the same consideration in that respect as does Calgary, and equally favourable distributing rates are made out of both places. Calgary no longer has any monopoly in the wholesale trade, and Calgary wholesale houses are now met half-way by Edmonton wholesalers, and in some cases Edmonton wholesale houses are doing business almost into Calgary."

It is satisfactory to know that Alberta is big enough to afford scope and accommodation for the most unrestricted enterprise and growth of Edmonton and Calgary, and other rising cities as well. Moreover, an enormous immigration is now finding its way into Southern Alberta. Calgary is situated half-way between the thickly-populated districts in the South and the older-settled regions of Edmonton, and is, therefore, an ideal distributing centre for Western Canada. The Grand Trunk Pacific and Canadian Northern systems will connect with Calgary, and render the splendid farming section along these lines readily accessible from there. A branch of the Great Northern Railway is also connecting with the city. At least half a dozen new lines from Calgary are projected.

Some idea of the rapidly increasing importance of Calgary will be gathered when I say that at the time I visited the city it was in possession of 13 chartered banks (three years ago there were four), a clearing-house, a builders' exchange, soap factory, lumber mills, cement factory, brick yards, several stone quarries, flour mills, brewery, saddlery and harness manufactory, abattoir, two hospitals, two theatres, biscuit factory, Government creamery, 76 wholesalers, eight papers, four clubs and innumerable other enterprises. The value of new buildings erected during the two years ending December, 1905, was 2,250,000 dollars. The assessed value of city property is 7,817,456 dollars. There are nine schools, including a high school, and the number of pupils attending is 1,500. A large normal school is now being built.

One hundred 1,200 candle-power arc lights turn night into day. They are supplied by a municipal plant, which has just been installed. This plant can also supply 6,000 incandescent lights. There is a second electric plant owned by a private company. Living is now moderately cheap, and with millions of acres under irrigation immediately east of the city, vegetables, eggs, poultry, butter and all other side-issues of the small farm under intensive culture will soon be cheaper than they are at present.

I was told that Calgary enjoys about 351 bright days of sunshine out of the 365, and, indeed, the fine climate of Central Alberta will be a powerful influence in shaping the destinies of the city. The winter of the district, I was assured, is a season of bright, cloudless days, infrequent and scanty snowfalls, and frequent and prolonged breaks of warm weather, heralded by the Chinook wind. Wagons are used during the entire year, and it is only an occasional season when sleighs are necessary for brief periods. In January and the early part of February there are sometimes short periods of cold, sharp weather. Heavy snow-storms have at times covered the prairie more than a foot deep, but this is exceptional. The winter generally breaks up in the early part of March, with a grand blowing of warm wind from the West, followed by a period of from one to three weeks of warm, bright weather, the beginning of spring. The earliest spring flowers appear in March. May is generally fine, warm and bright ; June and the earlier part of July rainy ; the remainder of July, August, September, October, and generally November, warm and dry. The summer, July to September, is characterised by hot days, relieved by a never-failing breeze and cool nights, but the warm, golden days of autumn, often lasting well into December, are the glory of the year.

And now I feel I should be guilty of a serious error of omission did I fail, before closing these articles on the principal centres of population and commercial activity in Canada, to make specific reference to one or two more of the towns which seem to present most promise of future importance. In Manitoba, for example, there is Portage la Prairie, which is a rising centre in one of the most prosperous wheat-growing districts of Manitoba ; and it had at the last census a population of about 4,000, which number by this time must have been largely increased.

Another prosperous town is Indian Head, with magnificent wheat-growing farms all round and a range of elevators which rise like monuments out of the flat prairie land. But more important still is Brandon, which has a population of some 10,000, and is the most important town in the Province of Manitoba, after Winnipeg. It is a railway junction of ever-increasing significance, and a concentrating and distributing centre for a wide wheat-growing area.

Coming now to Saskatchewan, Regina, its capital, is a rapidly growing town having a present population of about 10,000 inhabitants. It is on the main line of the Canadian Pacific Railroad, and is the point from which the branch line to Prince Albert starts. It is also the terminus of the Arcola branch from the south-east. Formerly it was rather a joke at the expense of Regina to talk about its mud, but within the past year or two

this has disappeared, and the streets are now well made, and the city possesses some first-rate public buildings. I was told that, as a matter of fact, Regina has the wealthiest municipal corporation in the whole of Canada, owning estate holdings of from 1,500,000 to 2,000,000 dollars, which were presented to it as a gift by the Dominion Government, these lands having been in its control since the town was originally laid out. Other prosperous towns in Saskatchewan are Moosejaw, Prince Albert, Saskatoon and Battleford.

In Alberta, of course, the principal towns are the immensely prosperous and rapidly advancing cities of Edmonton and Calgary,



A GLIMPSE OF A TYPICAL RISING WESTERN CITY.

with which I have already dealt. But mention should also be made of Lethbridge, situated in the midst of rich agricultural country, whose industries are rapidly increasing, and Medicine Hat, in whose neighbourhood are remarkable accumulations of natural gas. There are, I believe, seven, if not more, wells already sunk by the city—they are all “cities,” mind you, out West—and one of the wells, sunk to a depth of about a thousand or more feet, has a capacity of no less than two million cubic feet of gas per day.

Truly, with such a wealth of resource, these young western cities are great communities in the making, which, perhaps not in our day, but certainly in that of our children, will be great centres of Canadian population, but long before that will be the headquarters of growing and vigorous commercial and industrial activity, offering unlimited scope to the dictates of the true Western spirit.

CONCLUSIONS :

That Alberta is a favoured Province, with a delightful climate and vast advantages.

That an enormous immigration is the natural consequence.

That industrial development keeps pace with agricultural settlement.

That Edmonton and Calgary are cities of magnificent promise.

That Edmonton's population has grown twelve-fold in five years.

That three transcontinental railways will soon traverse its splendid site.

That building on an extensive scale is in progress.

That Calgary is rapidly expanding, and is the "Canpac's" headquarters for the Western Division.

That a great distributing centre has been established there.

That the rising towns of the North-West possess immense potentialities, which, in varying degrees, are bound to exercise their influence as factors in the development of the industries and prosperity of North-Western Canada.

SECTION II.

THE RAILWAYS OF CANADA.

CHAPTER I.

AN EPITOME OF SEVENTY YEARS'
PROGRESS.

AMAZING ADVANCEMENT.—RAILROADS THAT PIONEERED INDUSTRIAL DEVELOPMENT.—THE ELECTRIFICATION OF RAILWAYS IN CANADA.

ALTHOUGH we are accustomed to look upon Canada as a young country, nevertheless considerations of truth compel one to admit that it is one of the oldest Colonies, although, to be sure, it yields in seniority in this respect to Newfoundland and, I think, several others. It will, however, surprise many of my readers, whose sum of knowledge with regard to Canadian history is limited, to learn that the opening of the first steam railway in the Dominion dates as far back as 1836. In that year 16 miles of railway were in operation, but it was not until 1847 that a greater mileage was opened to traffic. In that year the miles of railway in operation had increased to 54, and this total had increased to 66 by 1850.

In the years which immediately followed a greatly increased amount of activity prevailed in the matter of railway construction, and within a space of five years the number of miles in operation had advanced to 877, while in the space of a further twelve months—that is, by 1856—no less than 537 additional miles were opened for traffic, bringing the total in that year up to 1,414 miles. Within the next decade the mileage opened for traffic had increased to 2,278 miles, and by 1876 the total had reached 5,218 miles.

Since then railway construction has continued on the most vigorous scale, becoming one of the most prominent factors in the industrial activity and material development of Canada. By 1886, for example, there were 11,793 miles of railway in operation, which total marked an increase in one year of no less than 1,020 miles of newly-constructed line. Again, by 1896 the total had reached as many as 16,270 miles, while by 1905 it had further advanced to 20,487 miles—which figures showed a construction of 1,056 miles since the year previous. Last year the mileage in operation reached the enormous aggregation of 21,353 miles,

while no less than 3,071 miles of railway were under construction on June 30th last, as compared with 1,066 miles on the corresponding date of 1905.

These figures afford material enough upon which to base an intelligent appreciation of the immense enterprise and activity which have been brought to bear upon railway construction in Canada, and of the enormous amount of money which the construction and capitalisation of the various systems represents. As one glances at a good modern map of the Dominion of Canada—one which shows the railways fairly up-to-date—one will notice that for the most part the railways form a comparatively narrow belt, stretching from the Maritime Provinces of Nova Scotia and New Brunswick in the East to Vancouver, in the south-western extremity of British Columbia, on the West.

This railway belt, if as such I may be permitted to describe it, widens out somewhat first in New Brunswick, and then in Ontario, where it dips southward to the shores of Lake Erie. Again, westward, beyond Winnipeg, it expands its ramifications in a north-westerly direction through Manitoba, Saskatchewan and Alberta, while before long the construction of the Grand Trunk Pacific—the new national transcontinental railway—which will have its Pacific terminus at Prince Rupert, in British Columbia, a point about 550 miles north of Vancouver, and the new lines now being built by the Canadian Pacific and Canadian Northern Railway Companies will considerably widen the belt of which I have spoken in Western Canada, and penetrate what is to most of the world, and to the majority of Canadians as yet, little else than a *terra incognita*.

In the matter of mileage, the palm amongst the railways of Canada is held by the line of the Canadian Pacific Railway. This company owned a total mileage in 1905 of 5,095 miles, a total which has, even in the short interval which has since elapsed, materially increased. In the same year the company leased and worked 3,202 miles of additional railway. Since 1905 the company has continued to construct fresh lines and to absorb others already existing, so that the figures I have quoted do not actually represent the total mileage in operation in 1907.

As in a subsequent chapter I deal specifically with the Canadian Pacific Railway, I need not here enlarge upon details respecting that great corporation further than, perhaps, to recall the fact that the construction of a railway from the Atlantic to the Pacific, on British territory all the way, was long the dream of a few enterprising spirits and pioneers of industrial development in Canada, who were possessed of the master minds which enabled them to become empire-builders in the most material sense of the term. This dream of the few became, as time went on, the

desire and the hope of the many, and when the British North American Provinces were confederated, in 1867, the realisation of the project became a matter of first-class political importance and, indeed, commercial necessity.

The Government of the new Dominion accordingly set about the construction of what afterwards became known as the Canadian Pacific Railway, an undertaking of almost bewildering vastness, overshadowing all railway schemes which the world had previously known. A great proportion of the country through which the railway had to be built was unexplored. All beyond the Red River Settlements was practically an unknown land, where Nature in her wildest and most spacious moods held undisputed domination, and whose fastnesses were only penetrated by the aboriginal Indian, and occasionally by the aggressive fur trader and trapper. A railway project whose consummation necessitated the penetration of range after range of mountains, and the piercing of valley after valley, presenting engineering difficulties which only such ranges as the Rockies or the Andes could present, might well stagger the resources of the best engineering skill of its time. Nevertheless, with that indomitable energy and perseverance characteristic of the British race—which show themselves to be especially pronounced amongst its Colonial scions, and which acknowledge no defeat—the scheme was inaugurated and prosecuted, notwithstanding overwhelming difficulties, amongst which those of a financial character were not wholly wanting, and ultimately triumphantly realised, representing in its union of the Atlantic and Pacific Coasts by means of an iron girdle one of the greatest engineering and railway enterprises of all time.

At first, as I have indicated, the work of construction was taken in hand by the Canadian Government, but its machinery was not adapted to carrying such a scheme towards a successful realisation, and accordingly in 1880 the task was handed over to a company formed for the purpose of taking over the project—the Canadian Pacific Railway Company—which entered into a contract with the Government to complete the railway within ten years. It was from a point in the Ottawa Valley, to which the railway system of Eastern Canada had at that time penetrated, that the line had to be carried through to the Pacific Coast, a distance of 2,550 miles. With liberal Government subventions the company set right vigorously about its work, and during the second year the rails had advanced into the Western heart of Canada for a distance of 450 miles, while the end of the third year found them at the summit of the Rocky Mountains, and the fourth in the midst of the Selkirks, more than a thousand miles distant from Winnipeg.

Meanwhile, feeder lines and branch connections were opened up in various directions, and other lines connected with the Atlantic seaboard purchased. Thus by the end of 1885 the company owned no less than 4,315 miles of railway, including the longest continuous railway line in the world, extending as it did from Quebec and Montreal right across the Continent to the Pacific seaboard, a distance of 3,050 miles, and by the mid-summer of 1886 the entire system was fully equipped and working throughout. And now the Canadian Government is co-operating vigorously in the building of one more great transcontinental railway—the Grand Trunk Pacific—to which I devote a separate article.

Second amongst the Canadian railways on the score of the extent of its mileage constructed and operated comes the Grand Trunk Railway of Canada, which at the end of 1905 was working 3,126 miles, of which 951 miles represent the main line and all the rest the total of the branch lines, with the exception of 173 miles, which are leased and partially owned by the company. The total mileage as at 1905 has, however, since been further increased. The Grand Trunk, of course, has an origin which long pre-dated that of the Canadian Pacific Railway. Its Act of Incorporation was passed by the Canadian Legislature in 1852, and it effected the amalgamation of seven incorporated lines: the Quebec and Richmond, the St. Lawrence and Atlantic, the Old Grand Trunk, the Grand Junction, the Toronto, Guelph and Sarnia, and the Main Trunk railways. Then, in 1882, the Great Western of Canada was amalgamated with the Grand Trunk, and since then numerous other absorptions and amalgamations have taken place, until the vast undertaking embraces and operates the great mileage I have mentioned.

Next on a mileage basis comes the Canadian Northern Railway, which operates a total of 1,880 miles, of which 788 represent the main line, stretching from Beaver to Humbolt and Port Arthur to Winnipeg, the remainder representing branch lines and lines operated by the company. Again, these 1905 figures do not represent the total mileage constructed and operated by this company up to the present date.

Close upon the total of the Canadian Northern Railway comes that of the Canadian Government Railways, which are for the most part comparatively short lines, the longest of them connecting Moncton with Cambellton, a distance of 185 miles. These Government railways, however, make up a total mileage operated as at June 30th, 1905, of 1,784 miles. Amongst others of the Canadian railways which have fairly large mileages, according to the official figures supplied up to the date last mentioned, are the Dominion Atlantic, with an operative mileage

of 220 miles ; the Great Northern, with 244 miles ; the Halifax and South-Western, with 193 miles ; the Calgary and Edmonton, with 296 miles ; the Central Ontario, with 134 miles ; the Lake Erie and Detroit River, with 223 miles ; the Montreal and Atlantic, with 162 miles ; the Qu'Appelle, Long Lake and Saskatchewan Railway, which connects Regina with Long Lake and Prince Albert, with 253 miles ; the Quebec Central, with 213 miles ; the Quebec and Lake St. John, with 244 miles ; and the Quebec Southern and South Shore Railway, with 143 miles. In addition to these, there are two or three scores of other Canadian railways, operating individually anything from two miles up to a hundred and more, many of them acting as unattached feeders to the great trunk lines.

The majority of these railways are of recent origin, for it was the completion of the Canadian Pacific system which gave a fresh impetus to railway construction in the Dominion, and as population increased and industries developed so railways spread their civilising network of iron roads in every direction which offered reasonable inducement, present or ultimate, of remunerative success. Then it should be remembered that, in addition to the steam-operated railways, there are at the present moment 814 miles of electric railway in Canada, all, of course, of recent construction, and a large number of companies are operating such undertakings in all directions. Probably the longest of the individual electric railways in Canada is that run by the Quebec Railway, Light and Power Company, in the Montmorency Division, which extends for 25 miles, and which, with the same company's electric line in the Citadel Division, which covers 17 miles, makes a total for that company of 42 miles.

In fact, the construction of electric railways is making great headway in Canada, Ontario alone having 441 miles, and Quebec 198, operated solely by electricity. The capital of the electric railway concerns in Canada totalled up last year to an aggregate of 63,857,970 dollars, and their earnings for the year collectively amounted to 4,291,934 dollars, while they carried in the same year 237,655,074 passengers, an increase of 34,187,757 over the result of the previous year's working, and all this with fatalities which decreased in number from 30 to 16. In this connection I should add that more than one, I believe, of the great Canadian railways are considering the expediency of partially electrifying their systems at no distant date. In this particular the Canadian Pacific is leading the way.

These figures, I may say, I have taken from the first return of Canadian railway statistics published under the auspices of the newly-organised Statistical Branch of the Canadian Department of Railways and Canals. The utility and success of the

compilation fully justify its establishment by the Minister of that Department, over which Mr. J. L. Payne ably presides.

From this excellent return I further gather that there is invested in Canadian railway undertakings no less an aggregate capital than 1,332,498,407 dollars, towards which, including the Intercolonial and T. and N. O. Railways, the Dominion Government contributed 194,188,584 dollars, the Provincial Governments 43,278,022 dollars, and the various Canadian municipalities 17,125,164 dollars. Moreover, it seems that the railway systems of Canada are kept well abreast of the requirements of the times in the matter of up-to-date constructional details and equipment. There are, for example, out of the whole of the mileage of the Canadian railways, only 74 miles laid with iron rails, as a sort of relic of the railway engineering practice of earlier years. All the rest of the Canadian permanent way is laid with steel rails.

A few statistics regarding the rolling-stock of the Canadian railways will also be of interest. It appears that there were in the whole of the Dominion last year 2,931 locomotives; 1,289 first-class, 716 second-class, and 842 baggage, mail and express cars; 61,927 cattle and box cars; 18,525 platform and 8,295 coal cars; representing an increase for that year of nearly 900 locomotives, 250 first-class, 68 second-class, and 31,555 freight cars—figures which sufficiently demonstrate the active and progressive policy followed by the administrators of the Canadian railways. And yet the development of Canadian commerce and manufactures is such that, even with the resources in rolling-stock that I have particularised, the complaints of shortage in this respect are being loudly emphasised by the trading community.

Moreover, it is worthy of remark, as is pointed out by the Comptroller, that the loaded train of 250 tons, which was the limit of 20 years ago, has been replaced by the train of 1,500 tons to-day, than which it would hardly be possible to imagine a greater evidence of railway advancement. Then, again, in addition to the cars I have just mentioned there were in existence last year 1,655 refrigerator cars, which, together with sleeping, parlour, dining and other cars, make up a grand total of 99,874 cars, of which 91,015 are fitted with automatic couplers and 85,616 with air-brakes.

That all this vast provision in the matter of rolling-stock is still under current requirements is evidenced by the further facts that in 1906 the steam railways—that is, leaving out the electric railways, which are in, perhaps, the majority of cases local concerns—carried 27,989,782 passengers and 57,966,713 tons of freight, representing an increase over the traffic of 1905 of 2,700,000 passengers and 7,000,000 tons of freight. With

increasing business, of course, the expense of operating the railways must show a certain degree of corresponding increase. So that one finds that the working expense of the steam railways increased from 79,977,573 dollars to 87,129,434 dollars. Notwithstanding this increased volume of traffic, it says much not only for the relative safety of railway transportation, but for the care with which the safety of passengers is safeguarded, that over the whole of the wide stretch of continent, with its more than 21,000 miles of operative railway track, there were during last year only 361 fatal accidents, which marks a decrease of 107 compared with those which occurred in 1905, notwithstanding the fact that in the twelve months' interval a greatly increased mileage was operated.

Altogether, there is nothing more striking in connection with the material development of Canada than the rapidity, the almost feverish eagerness, with which her railways are being spread as a network throughout the older, as well as the newly-settled, districts from East to West. In most countries the construction of railways has to await the settlement and populating of the land and the progress of industrial development. In Canada the policy favoured is rather the reverse: the railways are the pioneers. They penetrate the wilderness; they pierce the forest and traverse the prairie; they constitute the great instrumentality by which the unpeopled territories become populous and prosperous. They take the people to the new spots of 'vantage where profitable agricultural and industrial operations may be carried on, where elbow-room is abundant, and work and food, and the best that this world has to give, are forthcoming as a reward for those who are willing to work. Of no country in the world can it be more truly said that the railways have been the pioneers of civilisation, population and prosperity than is the case with Canada.

CONCLUSIONS :

That the recent development of railway enterprise in Canada is one of the most reassuring evidences of the amazing prosperity of the Dominion.

That the construction of Electric Railways in Canada has made remarkably rapid progress.

That, inasmuch as only 74 miles, out of a total exceeding 21,000 possessed by Canada, remain laid with iron rails instead of steel rails, it is manifestly the intention of Canadian railway administrators to keep fully abreast of the times in matters of engineering and equipment.

That official statistics show 1906 to have been a record year in Canadian railway traffic developments.

That unexampled activity now prevails in the Dominion in the matter of Railway Construction.

THE FIRST TIME-TABLE OF THE CANADIAN PACIFIC RAILWAY WAS ISSUED TWENTY-SIX YEARS AGO.

The first time-table of the Canadian Pacific Railway was issued twenty-six years ago. It consisted of two sheets. It showed a mileage on the two branches of 207 miles. The terminals of those branches were Brockville and Smith's Falls and Ottawa and Mackies.

The time-table was given on the authority of Archer Baker, general superintendent of the company, who is now the European representative, and C. W. Spencer, who recently resigned to assume the managership of the Mackenzie and Mann lines. It was not until two months later that Sir William Van Horne arrived to assume the office of general manager.

To-day the road has a mileage of 11,881 miles. Its ordinary time-table has 55 closely-printed pages, and its rails stretch from coast to coast.

One of the original time-tables (framed) is in the possession of Mr. A. B. Chaffee, the publisher of the International Railway Guide. A facsimile of a portion of the same is herewith given:—

CANADIAN PACIFIC RAILWAY.

TIME TABLE NO. I.—COMMENCING MONDAY, SEPTEMBER 26TH, 1881.

Close Connections made at Grand Trunk Junction with all Trains day and night on Grand Trunk Railway to and from Toronto, Chicago, and all points west, and at Brockville with Utica and Black River Railway to and from New York, Utica, Albany and all points south.

Through sleeping cars on Night Trains from and to Ottawa.

C. W. SPENCER,

Asst. Superintendent.

ARCHER BAKER,

General Superintendent.

BROCKVILLE DIVISION.

| TRAINS GOING NORTH.—Read Up. | | | | | TRAINS GOING SOUTH.—Read Down. | | | | |
|------------------------------|---------|---------|------------|----------------------|--------------------------------|---------|---------|-----------------|--|
| BROCKVILLE TO OTTAWA. | | | | | OTTAWA TO BROCKVILLE. | | | | |
| No. 20. | No. 18. | No. 16. | Distances. | STATIONS. | Distances. | No. 15. | No. 17. | No. 19. | |
| Toronto Exprss. | Exprss. | Exprss. | | | | Exprss. | Exprss. | Toronto Exprss. | |
| A.M. | A.M. | P.M. | | ARR. LVE. | | P.M. | P.M. | P.M. | |
| 6.10 | 11.55 | 5.35 | 45½ | Carleton Junc. ... | — | 12.10 | 5.45 | 12.00 | |
| .. | *11.44 | .. | 41 | Beckwith ... | 4½ | .. | *5.55 | .. | |
| *5.48 | 11.35 | †5.17 | 37 | Franktown ... | 4 | †12.27 | 6.05 | *12.24 | |
| .. | *11.20 | .. | 31 | Welsh's ... | 6 | .. | *6.17 | .. | |
| 5.23 | 11.10 | 4.58 | 28 | Smith's Falls ... | 3 | 12.50 | 6.25 | 12.48 | |
| .. | *10.56 | .. | 25 | Storey's ... | 3 | .. | *6.31 | .. | |
| 5.05 | 10.45 | 4.43 | 21 | Irish Creek ... | 4 | 1.05 | 6.43 | 1.07 | |
| .. | *10.31 | .. | 16 | Wolford ... | 5 | .. | *6.55 | .. | |
| .. | *10.25 | .. | 13½ | Bell's ... | 2½ | .. | *7.02 | .. | |
| .. | *10.20 | .. | 12 | Jelly's ... | 1½ | .. | *7.06 | .. | |
| 4.35 | 10.15 | †4.20 | 10 | Bellamy's ... | 2 | †1.30 | 7.13 | †1.35 | |
| .. | *10.05 | .. | 7 | Clark's ... | 3 | .. | *7.18 | .. | |
| .. | *10.01 | .. | 5½ | Fairfield ... | 1½ | .. | *7.21 | .. | |
| 4.10 | 9.50 | 4.00 | ½ | Grand Trunk Junction | 5 | 11.50 | .. | 2.00 | |
| 3.50 | 9.30 | 3.40 | ½ | Brockville ... | ½ | 12.00 | .. | .. | |
| A.M. | A.M. | P.M. | | LVE. ARR. | | P.M. | P.M. | A.M. | |

Runs on Sunday but not on Monday.

PERTH DIVISION.

| SMITH'S FALLS TO PERTH—NORTH. | | | | | PERTH TO SMITH'S FALLS—SOUTH. | | | | |
|-------------------------------|---------|---------|------------|-------------------|-------------------------------|---------|---------|---------|--|
| No. 31. | No. 29. | No. 27. | Distances. | STATIONS. | Distances. | No. 28. | No. 30. | No. 32. | |
| | | | | | | | | | |
| 7.10 | 5.32 | 1.40 | 12 | ARR. LVE. | — | A.M. | P.M. | P.M. | |
| *6.50 | *5.16 | *1.20 | 6 | Perth ... | — | 10.20 | 4.10 | 5.45 | |
| 6.30 | 5.00 | 1.00 | — | Pike Falls ... | 6 | *10.40 | *4.30 | *6.02 | |
| P.M. | P.M. | P.M. | | Smith's Falls ... | 6 | 11.00 | 4.50 | 6.20 | |
| | | | | LVE. ARR. | | A.M. | P.M. | P.M. | |

CHAPTER II.

THE CANADIAN PACIFIC RAILWAY.

ACROSS CANADA, ON THE CANADIAN PACIFIC RAILWAY.—ARRIVAL AT QUEBEC. — FROM QUEBEC AND MONTREAL TO FORT WILLIAM.—ALTERNATIVE ROUTES.—THROUGH WOOD BELTS AND PRAIRIE-LAND TO WINNIPEG AND REGINA.—ACROSS THE ROCKY MOUNTAINS TO VANCOUVER.—THE ELECTRIFICATION OF THE CANADIAN PACIFIC RAILWAY.—THE COMPANY'S ENTERPRISE AND EQUIPMENT.—THE FINANCIAL POSITION : WHAT IS THE STOCK WORTH ?

A REVIEW of Canada which included no mention of the Canadian Pacific Railway would be like the play of "Hamlet" with the character of the Prince of Denmark omitted. The C.P.R. system is so big that there is not room, even in the Dominion, to get far away from it. The C.P.R. takes you across the Atlantic and meets you on your arrival at Quebec. It carries you some 3,000 miles across the Continent to Vancouver, and then, if you are so minded, it ships you across the Pacific to China, Japan or Australia.

The Canadian Pacific Railway itself is, at the time I write, approximately 9,000 miles in length — one is obliged to approximate, because it is continually expanding—and, including controlled lines, the system embraces over 12,000 miles. It will very soon be 1,200 miles longer, for that is the total length of the several extensions now in course of construction. From St. John, in New Brunswick, the line extends through Quebec to Montreal and then right across the whole of Canada and through the Western wheatfields. Between Montreal and Vancouver there are over 400 stations, and many flourishing cities and towns are passed *en route*.

Let the reader imagine himself a passenger aboard one of the company's Atlantic "Empress" ships sailing up the noble St. Lawrence and arriving at the old and picturesque city of Quebec, the most interesting, perhaps, of all the cities in America. Its quaint buildings, crowding along the water's edge and perching on the rock side, its massive walls and battlements, rising tier upon tier to the famous citadel, which dominates the magnificent landscape for many miles around, all plainly tell of a place and

a people with a history. The Quebec of to-day is a city of warehouses, factories, hotels and universities, and the great new docks indicate that the city is anxious to redeem her old-time prestige as a shipping port. The great Quebec Bridge across the St. Lawrence, one of the most remarkable engineering feats ever attempted, is due for completion about the end of this year. The Canadian Pacific Railway has, of course, its own hotel in Quebec, the Château Frontenac, on Dufferin Terrace.

At Quebec the traveller takes the Canadian Pacific Railway, and is carried along by the St. Lawrence through a well-tilled country and a chain of quaint French towns and villages to



A LAKE-SIDE SCENE ON THE CANADIAN PACIFIC RAILWAY.

Montreal, the commercial metropolis of the Dominion. Montreal is the principal eastern terminus of the Canadian Pacific Railway, and the terminus also of numerous other "feeder" lines. Then for a thousand miles we have the choice of two routes. One may go from Montreal, through the farms and orchards of Ontario, to Toronto, the second city of Canada in importance—a modern and handsomely-built city, which is also the centre whence many extension lines radiate. From here we may visit Niagara, by way of Hamilton, and then, resuming our westward journey by one of the Canadian Pacific lines, four hours will take us to Owen Sound, on Georgian Bay, thence passing by steamer across Lake Huron and through the Straits of Sault Ste. Marie, where the steamer is lifted by an enormous lock to the level of Lake Superior. We then cross this great inland sea to Fort

William, on Thunder Bay, where the western section of the Canadian Pacific Railway begins.

The alternative route from Montreal is *via* Ottawa and Sudbury, along the north shore of Lake Superior. Gradually the towns become smaller and the farms more scattered, yet here and there thriving villages have sprung up and hardy pioneers are clearing away the timber and making homes for themselves. At Sudbury we see long lines of cars, heaped with the products of the mines and smelting furnaces near by, for within a few miles are deposits of copper and nickel ores, aggregating, it has



THE CANADIAN PACIFIC RAILWAY YARDS AT FORT WILLIAM.

been credibly estimated, 650,000,000 tons. We run down the shore of Thunder Bay and stop at the station at Port Arthur, a thousand miles from Montreal. This, with Fort William, is the joint terminus of the western section. The scenery hereabouts is diversified and beautiful. Again moving west, we pass through a country full of natural wealth. Valuable minerals and precious metals abound, and mining operations are extensively carried on. As we draw nearer to the prairies we find great sawmills beginning to appear, with piles of lumber awaiting shipment. We suddenly emerge from among trees and enter the wide, level valley of the Red River, and, after

crossing the river on a long iron bridge, we enter the city of Winnipeg.

This frontier post of yesterday has been transformed into



IN THE ROCKY MOUNTAINS.

a city of over 100,000 inhabitants, with all the evidence of wealth, comfort and cultivation to be found in the cities of a century's growth. The Canadian Pacific Company's hotel in Winnipeg

is a magnificent structure, and even the most fastidious will find nothing to cavil at in the accommodation provided. Nearly a thousand miles separate Winnipeg from the Rocky Mountains. The journey is performed on a line without curve or deflection, and so beautifully laid that the motion of the train is hardly felt. As we proceed westward the ground gradually rises.

At a distance of 133 miles from Winnipeg is Brandon, the second largest city in the North-West. Leaving Brandon we come to the real prairie—a great billowy ocean of grass and flowers, now swelling into low hills, again dropping into broad basins, with gleaming ponds, and broken here and there by valleys and irregular lines of trees, marking the watercourses.



BOW RIVER, ROCKY MOUNTAINS.

Regina, the capital of Saskatchewan, is reached at a distance of 360 miles from Winnipeg. It is situated in the centre of a fertile plain, and is undoubtedly one of the coming cities. At Moose Jaw, 41 miles beyond Regina, the main line is joined by the "Soo" line, which affords the shortest route between the Mississippi Valley and the Pacific Coast. The lakes now become more frequent and are the haunt of wildfowl. There is not much of interest till we reach Medicine Hat, 600 miles west of Winnipeg, where the main line is joined by the Crow's Nest Pass Railway to the Kootenay goldfields. This line also taps the Lethbridge collieries and the ranching country of Southern Alberta. Medicine

Hat is a finely-situated town on the broad and beautiful Saskatchewan River. Crossing the river, we again enter the ranch country, which continues until we arrive at Calgary, at the base of the Rocky Mountains, 2,264 miles from Montreal and 3,416 ft. above the ocean. Here, again, we are in the ranching country.

Leaving Calgary, and going west, we plunge into the heart of the mountains, and the chief interest of the journey, until we reach Banff, lies in the magnificent scenery—"fifty Switzerlands rolled into one," as it has been described in a vain attempt to reproduce its grandeur, the full effect of which it is impossible to convey in cold print. Suffice it to say that the appeal of this Western country to my artistic faculties was no less than was that



BANFF, IN THE ROCKY MOUNTAINS.

of the wheatfields of Manitoba (afterwards described) to my commercial instincts. Banff is the centre of the tourist district, and here the Canadian Pacific Railway has its hotel, perched on a hill overlooking the valley of the Bow River. If we continue our journey we cross the Kicking Horse Pass, and so, through British Columbia, on to Vancouver.

At Vancouver one realises the comparative nearness of the Orient, for here are to be seen the steamers which ply to China and Japan, Australia and New Zealand, Fiji, the Hawaiian Islands, California, Puget Sound and Alaska. The great white steamship that immediately catches the eye is the "Empress of India," one of the three swift and splendid twin-screw steamers that have been placed on the route between Vancouver and Japan

by the Canadian Pacific Company. Besides the magnificent Government buildings, the City of Vancouver, as I have occasion to note in another chapter, has many fine public and private structures, and the Canadian Pacific Railway has erected an elegant hotel. Mention must also be made of the C.P.R.'s new hotel at Victoria. There is much to interest the traveller before departing on his homeward journey, and from here, if we will, we may return to England across the other half of the world.

The energy of the Canadian Pacific management is now being directed towards opening up the splendid wheat-growing country in Central Alberta and Saskatchewan. Perhaps the



A PEAK IN THE ROCKY MOUNTAINS ABOVE LAKE AGNES.

most important branch now in course of construction is from Saskatoon, which is in direct communication with Montreal, to Wetaskwin, where connection is made with the Macleod-Calgary-Edmonton section. Westwards from Edmonton little more than survey work has been done as yet, but there can be little doubt that in the course of a comparatively short time it will be possible to travel direct from Edmonton to the Pacific without returning to the main line. Edmonton is not only an important centre for the North-West farming country, but is destined to become a railway centre served by three trans-continental systems, whose branches will radiate to the Pacific

on the west and Hudson's Bay on the north-east, thus carrying civilisation into the northernmost parts of the Fertile Belt, and providing fresh outlets for the rich and varied produce of the land.

Not the least interesting possibility in connection with the Canadian Pacific Railway is the electrification, which I mentioned in the previous chapter, of a portion of the system by means of the unlimited water power provided by Niagara and other falls. It is understood that the company is merely awaiting the results of experiments now being carried out on the New York Central before undertaking the electrification



OTTERTAIL MOUNTAIN, NEAR FIELD, BRITISH COLUMBIA.

of the Toronto to Sudbury section. If successful, the conversion of the Montreal-Toronto-Detroit line to electrical traction will doubtless be undertaken. Power can be obtained cheaply from the local companies, which are already supplying the leading cities with light and power—namely, the Shawinigan Water and Power Company, which supplies Montreal and the vicinity, and the Electrical Development Company of Ontario, which has harnessed Niagara, and supplies its current to Toronto.

This is one among the many problems of the future that will have to be solved if the company is to keep pace with the growth

of the Dominion, the increase in its population, and the development of its industries. A great portion of the line is already double-tracked, and ultimately it is the ambition of the management to possess a double-tracked system right across the continent. The company is on good terms with its neighbours, both Canadian and American. If there is new territory to be opened up it tries to get there first, but the management does not believe in rate wars, and does not build competitive lines in order to smash rivals. The Canadian Pacific Railway is content with the power it already wields, and is not looking for trouble. Hence, even the threatened invasion of the North-West by Mr. J. J. Hill leaves the Canadian Pacific authorities unmoved. They know that



THE GREAT GLACIER OF THE SELKIRKS.

there is room for all comers, and have quite enough work of their own in hand without worrying about rival projects.

The latest instance of enterprise on the part of the management is the announcement that 3,000,000 dollars will be spent in clearing 150,000 acres of Vancouver Island for agricultural purposes. The land will be adapted for fruit-growing, and extensive railway development will follow. What British railway company, I wonder, would think of developing a new district before constructing a line to it?

A company wielding such enormous power as the Canadian Pacific is naturally exposed to considerable criticism, but on the

whole it undergoes the test extremely well. That is because its power is tempered with mercy. Although its profits are enormous, and it is run on strictly business-like lines, its freight charges are never exorbitant, and, as I can myself testify, every effort is made to ensure the comfort of passengers. The railway carriages seem to be proportioned in keeping with the length and breadth of the land. The dining car is elaborately appointed, and one may breakfast and dine luxuriously. The sleeping car, with its soft cushions, silken curtains, thick carpets and beautiful decorations, adds greatly to the pleasure of the journey. The system has grown up with the country, and the



AMONGST THE ROCKIES: CATHEDRAL MOUNT.

pioneers of that system, who have borne the burden and heat of the day, deserve well of all Canadians.

There was a time—not so many years back—when the road looked like drifting into a receivership. The financial genius of Lord Mount-Stephen pulled it round the corner, and the prosperity of the Dominion has done the rest. I do not mean to suggest that the board of directors have had nothing to do but to go to sleep and wake up again in a few years' time to find the system grown out of all knowledge. What has been done has been accomplished by hard, unremitting effort, in the face of great natural obstacles, and often in defiance of prejudiced opposition. All honour to the men who have brought this gigantic enterprise

to the stage of perfection at which we now find it ! And, as they say at the political dinners, I couple with my toast the names of Lord Strathcona, Sir William Van Horne and Sir Thomas Shaughnessy.

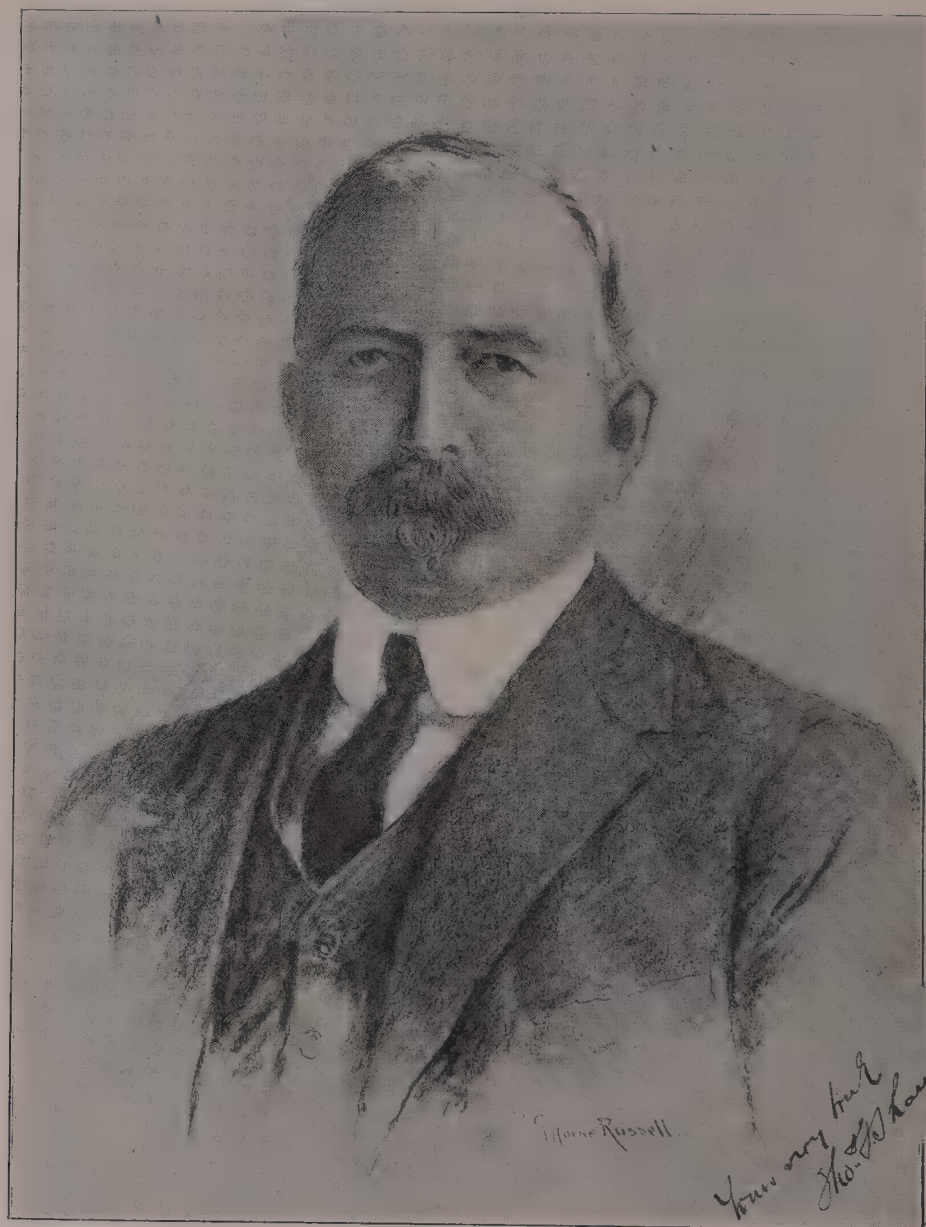
Considerations of space permit only a brief glance at the financial position of the Canadian Pacific Railway. The main point for the investor in the stock to bear in mind is that he is taking an interest not only in a railway system, but also in the greatest land-owning corporation in the world. First, with regard to the profits from the railway: these amounted to 14,352,000 dollars in the last financial year, after meeting all prior charges.



A CANADIAN PACIFIC RAILWAY BRIDGE IN THE ROCKY MOUNTAINS.

This was equal to more than 14 per cent. on the Common stock, and the net increase from July 1st to February 28th amounted to 1,096,000 dollars. The issued share capital, including the 20,280,000 dollars of new stock, is 121,680,000 dollars.

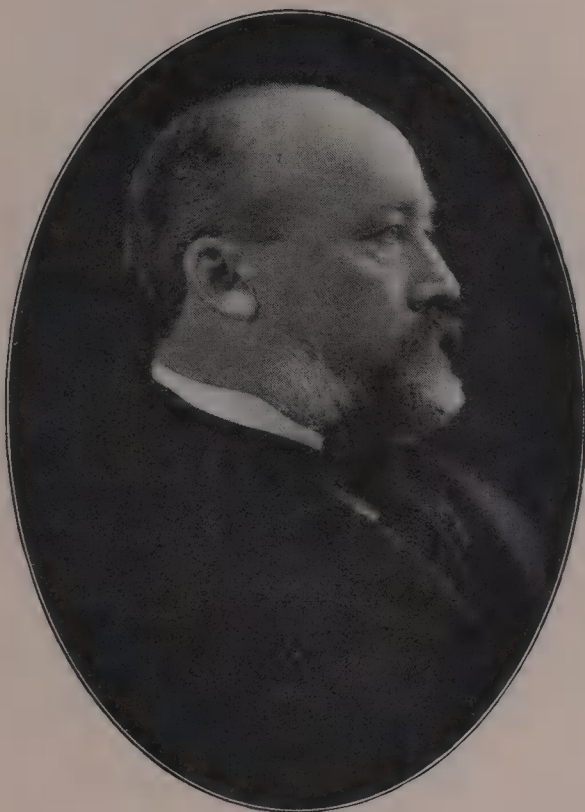
In the land department actual cash proceeds of sales in 1905-6 were over 5,000,000 dollars, equal to a further 5 per cent. Interest on deferred payments yielded 1,286,000 dollars additional, equal to another 1 per cent. Summing up: the railway department earned 14 per cent., and the land department 6 per cent., or a total of 20 per cent. on the Ordinary share capital. Out of railway profits 6 per cent. was paid to shareholders, and they are to receive 1 per cent. in two instalments—the first was



Sir THOMAS G. SHAUGHNESSY,
President of the Canadian Pacific Railway Company.

payable on the 1st April last and the next on October 1st next—representing interest on proceeds from land sales.

Out of its original grant of 25,000,000 acres, the company still had 13,473,350 acres unsold at the date of the last report, and has yet to receive 2,500,000 acres in respect of the Columbia and Western Railway, making a total of 15,973,350 acres. Last year the company sold 1,115,743 acres, at an average price of 5·85 dollars per acre. To-day the average value is certainly not less than 6 dollars per acre, so that the value of the land

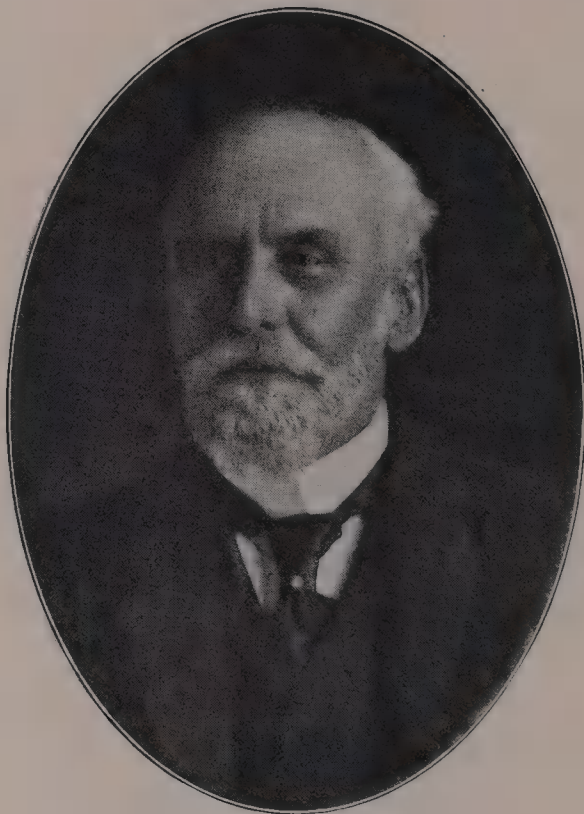


SIR WILLIAM VAN HORNE,
Chairman of the Canadian Pacific Railway Company.

holdings is something over 95,000,000 dollars, while the land actually in hand represents 80,000,000 dollars.

The object of bombarding my readers with these figures is to try and arrive at the real value of the shares. If we deduct from the Ordinary capital of 121,680,000 dollars the 95,000,000 dollars representing the company's land holdings, we find that the railway system, earning 14 per cent., is capitalised at 26,680,000 dollars. The market valuation of the whole property at 190 is 231,192,000 dollars; deduct value of land, 95,000,000 dollars, and the market value of the railway is 136,192,000 dollars. That is to say, if the dividend on the Common stock were

dependent upon railway profits alone, it would be valued by the market at 115, whereas I submit that a stock earning 14 per cent. and paying 6 per cent. is worth a premium of between 50 and 100 per cent. But perhaps the simplest way of valuing the stock is by comparison with another American transcontinental railway—the Union Pacific—which is earning 17 per



Mr. THOMAS SKINNER, J.P.,
A Director of the Canadian Pacific Railway Company.

cent. on its Common stock, against 20 per cent. in the case of the Canadian Pacific.

CONCLUSIONS :

- That the Canadian Pacific Railway is one of the wonders of the world.
- That it will transport you in luxury half-way round the globe.
- That the Railway is one of absorbing interest.
- That it gives you an idea of the wonderful progress that is being made in the development of the North-West.
- That there is plenty of room for further extensions, and the C.P.R. means to build them.
- That last year the Company earned 20 per cent. on its stock.
- That its land holding is worth at least 95,000,000 dollars.
- That there is scope for a further 100 per cent. rise in the stock.

CHAPTER III.

THE "CANPAC" STEAMSHIP SERVICES.

THE CANADIAN PACIFIC RAILWAY COMPANY'S FIRST STEAMERS.—THE BREEZY LAKES.—THE "CANPAC" LAKE STEAMER SERVICE.—THE COMPANY'S PACIFIC FLEET.—THE MAIL CONTRACT.—THE ATLANTIC SERVICE.—THE COMPANY'S STEAMSHIP TONNAGE.—THE TWO NEW "EMPRESSES."—POSSIBILITIES FOR THE FUTURE.—MR. ARCHER BAKER.

ANY attempt to do justice to the many interests of the Canadian Pacific Railway Company would require, not one chapter, but a dozen. Consider for a moment the extent and variety of those interests. First and foremost, there is that wonderful railway, stretching from ocean to ocean, which not even the mighty barrier of the Rocky Mountains could turn aside. Secondly, there are its steamship services, which already are of enormous importance, and which bid fair ultimately to dominate both the Atlantic and the Pacific. Thirdly, there are the millions of acres of land owned by the company, and the vast irrigation works, to which I devote a chapter in the Agricultural Section of this volume, now in course of construction. Fourthly may come the telegraphic system it owns and directs across the whole continent of British North America. Fifthly, there is the chain of colossal, palatial hotels it has built from Quebec to Vancouver. Add to all these interests its steamship services over the Great Lakes, its enormous grain elevators, its coal mines, its engineering establishments, docks, wharves and a dozen other kindred contributing agencies, and some idea can be formed of the immensity of this commercial undertaking. In my last chapter I attempted briefly to describe its railway and land interests. In the present one I propose to deal with the evolution of its steamship services, and with my own personal experiences as a passenger on its latest Atlantic "greyhound" and on one of its steamers running on Lake Superior.

It was in 1882 that Mr. George Stephen, now Lord Mount-Stephen, visited Europe on the important mission of ordering the company's first steamship fleet for the Upper Lakes. Three vessels of about 2,500 tons each were built on the Clyde, and

were named the "Alberta," the "Algoma" and the "Athabasca." On my journey from Toronto to Winnipeg I travelled by the last-named from Sault Ste. Marie to Port Arthur, having done the first part of the journey by the Grand Trunk Railway to



THE CANADIAN PACIFIC RAILWAY LAKE STEAMER, "ATHABASCA."

Sarnia, and from Sarnia by steamer over Lake Huron to the "Soo." Here I must admit that I had formed altogether a wrong idea of what a journey by the lakes really meant. I had anticipated that the sea might be as rough as it occasionally is at the Nore Lightship. The reality was very different. Never have I seen steeper seas in the English Channel than we met in Lake Huron and I was told that Lake Superior could produce

something much worse. Of course, the weather was exceptional for the time of year, but I felt that to term these inland waters "lakes" was as misleading as to name the great ocean whose waters wash the western side of Canada the "Pacific."

It is not surprising, therefore, that the nearer we got to Soo the more attractive that city became as a place where one could disembark and remain until the weather changed. I accordingly landed, and on the following day strolled to a ticket-office, where I saw a Lake Superior weather report for the previous day. I entered and asked if a later report had been received, informing the clerk in charge that, if the report were good, I intended taking a ticket to Port Arthur. The reply was that the forecast was expected every minute, and that I had better call again. This I did, and was told, in effect, that the sea on Lake Superior was as calm as a duck-pond, with a gentle south-westerly breeze, and that all the indications were of a most favourable character. Gladly I parted with my dollars for a ticket entitling me to travel by the ss. "Athabasca."

Hurrying to the hotel, I sent my luggage off, and walked leisurely back to the pier. Passing the ticket-office, I thought, "It will be a comfort to read that beautiful weather report." Crossing over, I saw a report, but what a report! "Smooth sea, gentle breezes?" Not a bit of it. All the wind furies of the universe seemed to have centred on Lake Superior. "Rough sea and heavy gale" was as near as I can remember the cheerful announcement which met my anxious eyes. But I could do nothing. The agent was "out," I had parted with my dollars, my luggage was checked to the boat, and I had wired to Port Arthur announcing my arrival by this boat. Continuing my walk to the pier, I was cheered by the thought that weather reports are never right except by accident, and that the Canadian Pacific Railway steamers had the reputation of being splendid sea-boats. This particular weather report was not right "by accident," as we had a very fair passage.

I do not wish it to be inferred that these Great Lakes are always in a condition of angry turmoil. On the contrary, I heard that during the season the boats are running bad weather is quite the exception. Certainly, the scenery is of a most lovely and varied character. Bold and rugged cliffs, hundreds of feet high, seem to surround much of the lakes. Numerous islands, set in a summer sea of dazzling blue, are continually being passed. The route is alive with vessels of every imaginable description, and this greatly adds to the interest of the passage. The "Athabasca" is a very fine vessel, with promenade decks running practically her whole length. The cuisine is excellent, and the sleeping accommodation all that

can be desired by the most fastidious. I ascertained that the vessel and her two sisters had been built in such a manner that on their arrival at Montreal they could be taken apart, divided into sections, and towed up the St. Lawrence to Buffalo, where they were once more put together and despatched to take up their stations on the service between Owen Sound and Port Arthur.

But the Canadian Pacific Railway was not long content to confine its energies to a mere lake service. Bolder and more ambitious projects were quickly formed, and these culminated in the establishment of a Pacific fleet. Some time about 1886 the steamships "Abyssinia," "Parthia" and "Batavia," each of about 3,000 tons, were chartered from the Fairfield Company and used for the conveyance of passengers and freight between Vancouver and the Far East. The service was immediately a great success, and in a very short time the "Port Augusta" and the "Port Victoria," each vessel being of about 3,000 tons, were added to the fleet. But the days of comparatively small things came quickly to an end.

In 1891 the company signed a Government contract for the conveyance of the mails to and from the East, *via* Vancouver. Under this contract the company received a subsidy of £60,000 per annum—£45,000 payable by the British and £15,000 by the Canadian Government. A certain speed was offered for £100,000 annual subsidy, and another speed for £60,000 subsidy, and the latter was the one accepted. As a result of this, the "Empress of India," the "Empress of Japan," and the "Empress of China," each of 6,000 tons gross register and 10,000 horse-power were built by the Naval Construction and Armaments Company, Limited, at Barrow. This was in 1891, and under Government contract the steamers were to be available in time of war as armed cruisers. Admiralty requirements had been satisfied in every respect in their construction, and no finer vessels of their size now cross the broad Pacific.

The ships are commanded by men of the Royal Naval Reserve, and the service, for its regularity, the excellence of the cuisine, and the attention which is given to the minutest detail where the comfort of the passengers is concerned, has won for it a reputation not excelled even by the P. and O. Well I remember the description given me by Sir William Van Horne of the first trip of the "Empress of India," when that vessel broke all previous records, and the mails were carried from Yokohama to London in 21 days. This wonderful performance was just "to show what could be done." Sir Thomas Shaughnessy has personally given the closest possible attention to the service, visiting China and Japan in order that he might see that nothing

was left undone to ensure the greatest efficiency. Recently a mail contract was concluded with the British Government, under which the schedule times from England are as follow : to Yokohama, $22\frac{1}{2}$ days ; to Shanghai, $27\frac{1}{2}$ days ; to Hong Kong, $29\frac{1}{2}$ days.

With vessels on the Pacific, it was evident that a service must also be placed upon the Atlantic. Once the Atlantic was bridged by their boats, the chain would be complete from Great Britain to the Far East. Accordingly, in 1903, the company purchased a ready-made fleet of 15 steamers, the average age of which was only $2\frac{1}{2}$ years. With these, regular services to Canada have since been maintained from Liverpool, Bristol, London and Antwerp.



THE CANADIAN PACIFIC RAILWAY ATLANTIC LINER, "EMPERESS OF BRITAIN,"
14,500 Tons, 18,000 H.P.

In order that some idea may be formed of the importance of the company's steamship interests, I have collected from various sources the following totals :—

| | Steamers. | Tonnage. |
|---|-----------|----------|
| Atlantic Ocean | 15 | 123,885 |
| Pacific Ocean | 6 | 31,805 |
| Upper Lakes | 3 | 7,167 |
| Pacific Coast | 14 | 12,396 |
| British Columbia : Lake and River | 16 | 11,649 |
| Gross total | 54 | 186,902 |

But, from various conversations I have had with Sir Thomas

Shaughnessy and Sir William Van Horne, I am convinced that the company do not intend to rest upon their present laurels. It is an open secret that the two "Empresses" have been an unqualified success. At the present time the "ocean passage" by these boats is reduced to about $4\frac{1}{2}$ days, but, if I mistake not, the passage will be still further shortened. In other words, I believe the time is not far distant when the company will own boats of equal speed to any crossing the Atlantic on the New York route. This unquestionably means that the company will secure a large amount of the American traffic; and, finally, I anticipate that the Canadian Pacific Railway Company will not only be the owners of the biggest railway in the world, but they will be equally omnipotent upon the sea.

Armed with a thorough knowledge of Northern Atlantic traffic requirements, the Canadian Pacific Railway determined last year to shoot ahead and order from the famous Fairfield Ship-building Yard—which has been the birthplace of so many Transatlantic "greyhounds"—two new "Empresses" for the Atlantic service. These mighty steamers—"Empress of Britain" and "Empress of Ireland"—which now unitedly hold the record for fast passages in both directions, are worthy of special mention. They are 14,500 tons burden, possess 18,000 horse-power, and are the largest and fastest vessels on the Canadian service. I had the pleasure of travelling to Quebec by the "Empress of Ireland," and it was apparent to me that nothing which money could buy had been spared in making the steamer worthy of the reputation of the great Imperial body whose house-flag was at our mast-head. Its magnificent assembly hall, café, music-rooms, spacious state-rooms and luxurious dining saloons have already been widely commented upon in the Press.

Frankly, what I was more particularly interested in was, whether the claim which had been put forward as to the exceptional sea-going qualities of the boat would be substantiated by my own personal experience. I am happy to say that I formed a most favourable opinion. It is true that we did not experience any really bad weather, but once or twice during the voyage we had several hours of fairly heavy head-seas, and it was obvious to the veriest tyro that the boat was behaving splendidly. There was practically no vibration, and the general opinion amongst the very large number of passengers on board was that a steadier boat of her speed was not on the Atlantic to-day. I ascertained that the vessel had a double bottom, and was divided to an exceptional extent by water-tight bulk-heads. Indeed, so many precautions to ensure safety had been taken that the boat is practically unsinkable.

As we had head-seas all the way, there was little or no

opportunity of judging as to whether the boat was a "roller," but I understood from several conversations I had with various members of the crew that the broad bilge-keels with which the vessel is fitted effectually obviate any serious exhibitions of this description, even in the worst of weathers. Another point which forcibly struck me was the exceptionally good ventilation and heating arrangements. On inquiry I ascertained that the "Thermo" tank system was installed. By this system, a complete change of air (heated or cooled as desired) in every compartment is ensured once in every two minutes. The air,



Mr. ARCHER BAKER.

therefore, was always "sweet," and I should imagine that any "unfortunates" who were ill must have found this very comforting.

It is scarcely necessary to point out that the immense freight and passenger service from Great Britain and the Continent has not been secured without great effort. Fortunately, the company has been represented in England for many years by a gentleman of wide experience, great business capacity and indefatigable energy—I refer to Mr. Archer Baker. The result of this gentleman's work is to be seen in the placing of the two latest "greyhounds" on the service. The commercial success

which has already attended the management of these boats is very largely due to his efforts. That they were placed on the service is probably due to his initiative. Personally, I am convinced that in his capable hands the European business of the company is certain to finally reach very large dimensions indeed.

CONCLUSIONS :

That in all probability the Canadian Pacific Railway will ultimately "rule" the Atlantic.

That to Sir Thomas G. Shaughnessy is largely due the initiative which has brought about the establishment of the Atlantic and Pacific steam services.

That the two "Empresses"—"Empress of Britain" and "Empress of Ireland"—are among the finest boats crossing the Atlantic.

That they have speed, splendid sea-going qualities, and magnificent accommodation for passengers.

That the success of the freight and passenger business of the Canadian Pacific Railway with this country is largely due to the energy of Mr. Archer Baker.

CHAPTER IV.

THE GRAND TRUNK RAILWAY OF CANADA.

THE GEOGRAPHY OF THE SYSTEM.—THE HUGE NETWORK OF THE RAILWAY CONNECTIONS IN CANADA AND THE UNITED STATES.—THE WORLD'S LONGEST DOUBLE-TRACK RAILWAY.—BRIDGING AND TUNNELLING EXTRAORDINARY.—THE GRAIN TRADE OF THE GRAND TRUNK.—ITS PASSENGER TRAFFIC.—THE ADMINISTRATION OF THE GRAND TRUNK RAILWAY.—THE FINANCIAL REGENERATION OF THE UNDERTAKING.

THE Grand Trunk Railway of Canada has played such an important part in the development of the Dominion, and is so certain to continue to do so in the future, that any survey of Canadian activities must necessarily embrace special consideration of that great enterprise. The company, whose operations have so largely contributed to the progress of the Dominion, is really the pioneer great railway of Canada, and holds a prominent place among the railways of America. Originally incorporated, as I have previously mentioned, in 1852, it has since acquired by lease, amalgamation or purchase the companies forming the present large system of 3,769 miles in Canada and 1,558 miles in the United States, making a total mileage of 5,327 miles.

One of the companies included in the present system dates as far back as 1832, when the Champlain and St. Lawrence Railway Company was incorporated for the purpose of providing means of transportation between the Richelieu and the St. Lawrence Rivers, from St. John's to La Prairie, in the Province of Quebec; while a few years later, in 1845, took place the incorporation of the Atlantic and St. Lawrence Railway Company, and finally, in 1852, the incorporation of the present Grand Trunk Company. The line from Portland to Montreal was opened in 1853, from Richmond to Quebec in 1854, from Montreal to Toronto in 1856, and from Toronto to Sarnia in 1858.

The Grand Trunk system, as at present composed, commences at the eastern termini of the main lines at the City of Quebec, on the St. Lawrence River; at Portland, Maine, U.S.A., on the

Atlantic Ocean ; and at Rouse's Point, on Lake Champlain. From the first-named point the line extends along the south shore of the St. Lawrence River to Richmond, in the Province of Quebec, where it joins the line from Portland, and thence, running westerly, is joined at St. Lambert by the main line from Rouse's Point, and crosses the St. Lawrence River at Montreal over the famous Victoria Jubilee Bridge. From Montreal the line continues its westward course along the north shore of the St. Lawrence River and Lake Ontario to Toronto. At that point lines diverge to the south and west through the fertile Niagara Peninsula to Niagara Falls and Buffalo, to Windsor and to Sarnia and Port Huron, and to the north to the ports on Lake Huron and Georgian Bay, and through the now famous Muskoka Lakes country to North Bay. From Sarnia there is through communication with Chicago over the Grand Trunk Western, while the company has also a terminus at Milwaukee by reason of its control of the Detroit, Grand Haven and Milwaukee Railway. By the acquisition of the Canada Atlantic Railway and its subsidiaries the company has secured a line extending from Swanton, in the State of Virginia, to Ottawa, and thence to Depôt Harbour, in Georgian Bay. At Depôt Harbour steamers connect with Chicago and Milwaukee.

The Grand Trunk system, we thus see, comprises lines of railway under one control extending from Chicago to the Atlantic seaboard at Portland, Maine, and to Quebec, on the St. Lawrence River. At Chicago, by means of the Chicago and Western Indiana and Belt Lines, the Grand Trunk can interchange with practically all the western and north-western lines of the United States. By means of the company's various lines connecting with the chief ports on Georgian Bay and Lake Huron—Depôt Harbour, Midland, Collingwood, Owen Sound and Goderich—communication is established with the principal ports on Lake Michigan and Lake Superior. By reason of its control of the Central Vermont and its leased lines, extending from St. John's in Quebec to New London, Connecticut, U.S.A., through facilities are obtained between Chicago and New York, Boston and other points in New England States.

In Canada the Grand Trunk reaches almost every town in the Provinces of Ontario and Quebec, and, in conjunction with the Intercolonial Railway, interchanges traffic to and from the Provinces of New Brunswick, Nova Scotia and Prince Edward Island. In the summer season, when the St. Lawrence is open to navigation, the company has working arrangements with the various steamers from Montreal, as well as those sailing from Portland, for the convenience of traffic to Liverpool, Glasgow, London, Bristol and other European ports, while in the winter

season the traffic to Europe is conducted principally through the port of Portland.

The most important feature of the Grand Trunk system is the large proportion of the line which has double track. Between St. John's, Quebec and Chicago, a distance of 872 miles, there is a double track of rails for the whole of the way, this being the longest double-track railway under one management in the world. The total length of the double track on the system is 1,019 miles. Its splendid situation in the most thickly-settled and productive portions of the Dominion, with ramifications by its branch lines and feeders into all the well-populated and industrial centres, places the Grand Trunk Company in an exceptionally favourable position for the in-gathering of traffic.

A glance at the map of Canada, and particularly that of the Province of Ontario, which is the garden of the Dominion, will show how the company has established countless feeders in positions of advantage, so that it now touches every point of importance in the eastern part of the country. And as Eastern Canada is clearly destined to become the manufacturer-in-chief for the entire Dominion, if only by reason of its numerous and extensive water-powers, it is obvious that the Grand Trunk, which holds a practically impregnable position in that part of the country, must become the great distributor of the Dominion's manufactured goods, the volume of which should rapidly expand with the great mineral and agricultural developments taking place all over the continent.

Within the past decade enormous improvements have been effected in the physical condition of the system, with the result that the Grand Trunk has now attained a very high standard of working efficiency. The line between Montreal and Chicago is now acknowledged to be the equal, if not the superior, of any railroad on the North American continent. Every mile of track is laid with 80-lb. rails. Grades have been reduced, curves straightened, and in some cases the mileage lessened. Everything, in fact, has been done to accelerate speed with the minimum of power.

One of the company's greatest improvements is undoubtedly the magnificent Victoria Jubilee Bridge stretching across the St. Lawrence at Montreal. This imposing triumph of modern engineering, which replaced the old single-track bridge opened by the present King in 1860, is 9,144 ft. in length, and has double tracks, carriage-ways and footwalks; and it is a noteworthy fact that the whole of its rebuilding was accomplished without causing any delay to the traffic. Another great feature of the system is the double-track steel bridge over the Niagara Gorge, admitted to be one of the finest bridges in the world. Its total

length, with approaches, is 1,100 ft. It has two decks, or floors, the upper one, 30 ft. wide, occupied by the double track of the railway, and the lower one comprising a broad carriage-way and footwalks. It should be mentioned that the trains slow down when passing over this bridge to enable passengers to view the magnificent prospect. The great St. Clair Tunnel, one of the longest submarine tunnels in the world, is yet another of the engineering triumphs with which the Grand Trunk system is associated. The tunnel, which is 6,020 ft. in length, runs underneath the St. Clair River, and connects the Canadian lines with those of the United States.

More than a score of elevators of varying capacity are to-day owned or controlled by the Grand Trunk Company, the largest being at Portland, the terminus of the line on the Atlantic, and at Dépôt Harbour, on the Georgian Bay, two of these elevators having a capacity of 1,500,000 bushels and 1,250,000 bushels respectively. Before 1898 the Grand Trunk did not handle any grain from Lakes Superior and Michigan through its Georgian Bay and St. Clair River ports elevators for export *via* the port of Montreal. Since that time, however, it has done a large and increasing share of that business, handling in some seasons over 40 per cent. of the entire Canadian North-West grain shipped by water from Lake Superior ports. At Montreal a steel elevator of 1,000,000 bushels capacity, of the most improved and modern plan, has been erected for the better and more efficient handling of this large business.

To give some idea of the importance of the North-West grain trade, it may be stated that the shipments of wheat from Port Arthur and Fort William in Canadian vessels for the season of 1905 aggregated nearly 30,000,000 bushels, the Grand Trunk carrying in connection with their elevators $9\frac{1}{2}$ million bushels, or 32 per cent. of the total. In the previous year the wheat shipments totalled 27,000,000 bushels, and the Grand Trunk's share 10,600,000 bushels, or 39 per cent. And, important as the grain trade is to the company at present, the wheat traffic of to-day is nothing to what it will be when the company is brought into direct communication with the North-West over its new Pacific extension. At Portland, with one of the most magnificent deep-water harbours, the arrangements for dealing with grain exports are unrivalled. The new grain elevator of $1\frac{1}{2}$ million bushels capacity is the largest on the Atlantic coast. Grain can be run into three vessels at the same time from this monster elevator.

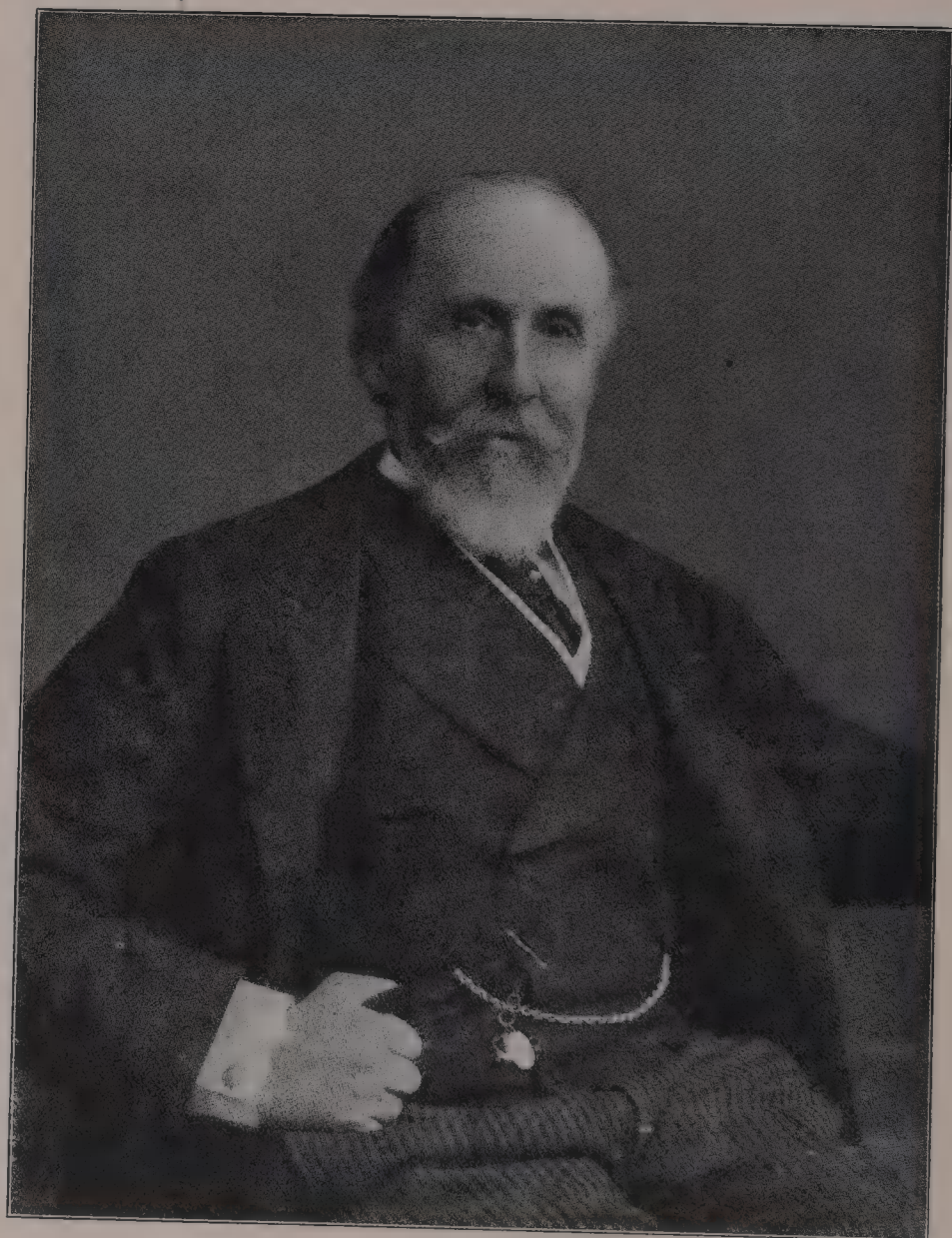
The Grand Trunk Railway has a large and important passenger traffic, for which the most excellent provision is made. There are four fast trains, two express and two limited, between Montreal and Toronto each way daily. There are through

trains between Boston, Montreal, Toronto and Chicago and between New York, Toronto and Chicago *via* Niagara Falls. The day trains are provided with dining, café-parlour and library cars, while on the night trains there are Pullman vestibuled sleeping-cars. All these trains, besides being artistic and pleasing to the eye, are replete with every improvement. Indeed, no praise can be too high for the company's rolling-stock, which in point of comfort and convenience compares to advantage with the best obtainable on the North American continent—the country *par excellence* of luxurious travel.

Besides its ordinary business traffic, the Grand Trunk conducts a large pleasure traffic, not only to Niagara Falls, but to the many picturesque spots and health resorts in the Highlands of Ontario. To the Muskoka region goes the brain-fagged and tired business man, the enthusiastic gunner or the patient disciple of Izaak Walton. To those in search of scenic beauty there are few spots to rival this beautiful and invigorating district. Then there is the Lake of Bays region, 156 miles north of Toronto ; Lake Nipissing and the French River, whose attractions are fast becoming known to the sportsman ; the Temagami region, a great patch containing 1,400,000 acres of lakes, rivers and wilderness ; and the islands of Georgian Bay.

The great secret of the success and ever-increasing popularity of these northern resorts lies in the fact that everyone who goes there becomes a travelling advertising agent for the country, and a fast friend to the Grand Trunk Company, which is opening new and delightful worlds to tourists, sportsmen and followers of big game. The traveller who has exhausted the attractions of Europe, and who is sighing for “ fresh woods and pastures new,” cannot do better than direct his steps to the beauty spots of Northern Ontario. While in Canada I travelled over a very large part of the Grand Trunk system. Throughout I received the greatest possible courtesy from the company and from its officials. I was strongly impressed with the punctuality of the service of trains, the obvious signs of good management, and the evident popularity the company enjoys amongst the travelling public.

In one respect the Grand Trunk is unique among the railways of Canada : the board is an exclusively English one, apart from Mr. Hays, and its finances are directed and controlled entirely from London. I am aware that considerable feeling exists on this subject in Canada, and that the opinion is held in some quarters that the company would benefit were the directorate, or at least a large proportion of it, domiciled in the Dominion. Still, the existing arrangement has worked so well that I see no very convincing reason for altering it, more especially as the



Sir CHARLES RIVERS WILSON, G.C.M.G., C.B.,
President of the Grand Trunk Railway of Canada.

bulk of the capital is held by investors in this country, who naturally claim to be brought into close touch with the board from time to time—a privilege they could not enjoy were the directorate a Canadian one, and the half-yearly meetings held in Montreal instead of in London.

But while the board is an English one it is in constant communication with Canada, and both the president and other members make periodical tours of inspection of the undertaking. In any case, they have in Mr. Charles Hays, the second vice-president and general manager, a representative on the spot who keeps them thoroughly well informed as to what is happening, and who looks after the interests of the shareholders in a manner which reflects the greatest credit upon himself. In the president, Sir Charles Rivers Wilson, who in his time has held important positions under the British Government, and of whom a portrait is given on the opposite page, the company possesses a head who commands the highest respect in commercial and financial circles in this country, and the confidence reposed in his capacity has been fully warranted by the excellent results that have followed his acceptance of office. Indeed, all the company's officials in England, from the president down to the courteous and indefatigable secretary, Mr. Norman, have displayed capacity and intelligence which, I doubt not, must be held largely responsible for the present prosperous position of the undertaking.

To realise what the present management have accomplished we have only to compare the company's financial position to-day with that existing some eleven years ago, when the present officials assumed control of the property. When the present board took office in 1895 the Grand Trunk was in considerable financial difficulties, and its net earnings were not sufficient to pay its fixed charges. A default had occurred in its Debenture charges, and the difficulties confronting the new directorate were regarded as insuperable. Soon, however, an improvement set in and by 1897 the deficit was wiped out, and in the following year the company resumed the payment of interest and dividends, the 4 per cent. distribution on the Guaranteed stock being provided in respect of that year, after an interval of four years, as well as 3 per cent. on the First Preference stock. Since then the Grand Trunk has gone ahead practically without interruption. In 1899 the full 5 per cent. was provided on Firsts and a partial distribution made on Seconds, which received their full rate for the first time in respect of 1902, the Third Preference stock getting 1 per cent. for the same year. The payment of the full 4 per cent. on the last-named security seems to be now within measurable distance.

How the company's credit has improved under the present

régime may be gathered from the following comparison of the lowest prices of the company's principal stocks recorded since 1895 with the highest prices of the present year :—

| | Lowest. | Highest. | Rise. |
|----------------------|------------------|-------------------|------------------|
| 4% Guaranteed | 35 | 103 $\frac{3}{8}$ | 68 $\frac{3}{8}$ |
| First Pref. | 26 $\frac{1}{8}$ | 122 $\frac{5}{8}$ | 96 $\frac{1}{2}$ |
| Second Pref. | 16 $\frac{1}{4}$ | 114 | 97 $\frac{3}{4}$ |
| Third Pref. | 9 | 76 | 67 |

The above comparison, I think, provides a very striking contrast, and constitutes a remarkable testimony to the energy and ability of the present management, even if due allowance is made for the favourable conditions, of which, thanks to the prudent policy of liberal expenditure on betterments, they have been able to take full advantage. Still more creditable is the fact that the financial regeneration of the property has been accomplished without any appreciable addition to capital account, the net increase being only about 6 $\frac{1}{2}$ per cent. in the past eleven years.

CONCLUSIONS :

That the Grand Trunk Railway of Canada is destined to play ~~an~~ all-important part in the future development of the Dominion.

That it constitutes the longest double-track railway under ~~one~~ management in the world.

That it occupies a splendid situation in the most thickly settled and productive portions of the Dominion, and that owing to its practically impregnable position in Ontario it must become the great distributor of Canada's manufactured goods.

That in point of construction and equipment the Grand Trunk is second to ~~none~~ on the American Continent.

That the management is enterprising, prudent and efficient.

That its remarkable financial recovery within the past eleven years reflects the highest credit upon the capacity of all concerned in its regeneration.

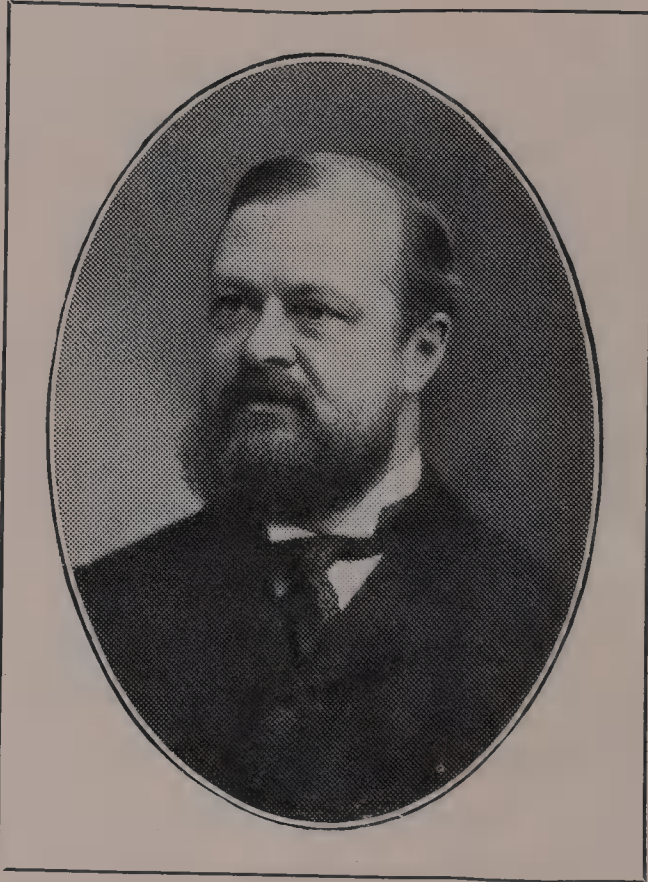
CHAPTER V.

THE NATIONAL TRANSCONTINENTAL RAILWAY: THE GRAND TRUNK PACIFIC COMPANY'S PROJECT.

A COLOSSAL RAILWAY SCHEME AND ITS LEADING SPIRITS.—THE EASTERN DIVISION: FROM MONCTON IN NEW BRUNSWICK TO WINNIPEG.—THE WESTERN DIVISION: FROM WINNIPEG TO PRINCE RUPERT ON THE PACIFIC COAST OF BRITISH COLUMBIA.—THE REMARKABLY FAVOURABLE PHYSICAL CONDITIONS.—THE GREAT POTENTIALITIES OF THE PRAIRIE AND MOUNTAIN SECTIONS.—THE TOWN AND PORT OF PRINCE RUPERT.—THE TRAFFIC POSSIBILITIES.—THE FINANCIAL POSITION AND PROSPECTS.

THE study of big maps, urged by the late Lord Salisbury, has not yet been generally adopted, and, unless the reader has seen with his own eyes the vastness of the country and the variety and diversity of the interests affected, he can form no conception of what the Grand Trunk Pacific Railway is destined to be from mere reading with the aid of the maps ordinarily available. Personally, I was very fortunate, for not only did I see many of the great centres of commercial importance and also much of the rich agricultural country through which the line will pass, but I had the opportunity of hearing the views of Mr. C. M. Hays, the president, Mr. F. M. Morse, the vice-president and general manager, and Mr. Wm. Wainwright, the second vice-president of the company. I had also the opportunity of gathering many interesting details from Mr. Henry Phillips, the able secretary of the company.

Personal impressions of men engaged in great undertakings are generally interesting if they are, as in this instance, given first hand. On the first occasion of my meeting Mr. Hays he was in his private car at Edmonton, and on the second he was holding a sort of informal levée at Calgary Station. Two entirely different personalities were revealed. In the seclusion of his car he was the serious, business man of affairs—alert, decided, every word and gesture giving the idea of an inflexible will. “Implacable, a born fighter, and a man who could and would ruthlessly sweep



Mr. C. M. HAYS,
President of the Grand Trunk Pacific Railway Company.

every obstacle from his path without compunction" was plainly stamped upon his strong face. Obviously, also, a man of great mental as well as physical endurance. "This man will succeed in what he undertakes, and at any cost," was my conclusion.

Later on, when all sorts and conditions of men were pressing upon him to obtain brief interviews, it was difficult to believe that one was face to face with the same individual. Hearty, bluff, he was the personification of a good fellow, with a kindly word for everyone, without a serious care or preoccupation in the world, and seeming to just wish that everyone else should be as jovial as himself. If he said "No!" it was evident that he did so with regret, and the "Yes" came much more naturally and spontaneously. "Fighting his way to the top of the ladder has not dried up much of the milk of human kindness in this man's heart" was my somewhat unexpected conclusion.

In Mr. Morse one seemed to have a much more complex individuality. "Suave, courteous and conciliatory, throbbing with nervous energy, a big imagination, a keen business man, a hard bargainer, capable of intense application"—all these characteristics were plainly indicated, but it struck me that one would have to be very well acquainted with Mr. Morse to judge accurately of what he really was thinking.

As for Mr. Wainwright, he impressed me as a man of very large railway experience, of solid judgment, a great master of detail, a hard worker, expecting much from his subordinates, but withal a kindly, genial gentleman, who would gain and retain the respect of all with whom he might come into contact. I make no apology for dealing at some length with these gentlemen, for upon their energy, capability, resourcefulness and judgment the carrying out and completion of one of the greatest railway enterprises of modern times must necessarily largely depend.

I cannot profess to give the actual words of my interviews with these gentlemen, but the following particulars of the railway, the financial agreements with the Dominion Government, the capitalisation of the Company and the districts through which the main and branch lines will pass were gleaned from them, supplemented by official documents placed in my hands. First of all, I understand the Eastern terminus of the railway will be at Moncton, New Brunswick. The port of Halifax is only 183 miles distant, and the port of St. John 89 miles. These seaports will be reached over the Inter-Colonial Railway, and thus the Atlantic trade will be directly tapped. From the terminus the line will be run to the City of Quebec. Five miles above this city the road will cross the St. Lawrence River by the largest cantilever bridge in the world, now under construction. From Quebec a direct route will be taken to Winnipeg, but a branch line will

be constructed to Montreal ; another, about 220 miles in length, to Fort William and Port Arthur ; and a third, about 250 miles in length, to North Bay, in the Province of Ontario, to make connection with the lines of the Grand Trunk Railway Company of Canada.

A glance at a map will show that the routes of the main line and the various branches have been chosen with great judgment. Western Quebec and New Ontario are rich in minerals, timber and other natural products. An enormous area of mineral-bearing Huronian rocks are known to run northwards from the Lakes towards Hudson's Bay. In the vicinity of Lake Abitibi there are copper and gold, and about Lake Nipigon iron-ore is found that very much resembles that found in the State of Michigan. In the north of Ontario there are famous nickel mines, whilst by the branch lines to Fort William and Port Arthur, on Lake Superior, all the enormous volume of lake-borne trade is brought within direct access.

Apart from the branches, the distance from Moncton to Winnipeg is 1,800 miles by the route taken by the line. It need scarcely be pointed out what enormous benefits the Company will derive from its promotion by the Grand Trunk Railway. The system consists of no less than 4,800 miles of railway. All the cities and the principal towns in Eastern Canada, including Windsor, London, Hamilton, Toronto, Montreal and Quebec, will be brought into direct communication with the new line. By the connection with the City of Montreal the new company will be brought into direct touch with the navigation of the St. Lawrence. Unquestionably, also, the construction of the railway will lead to great developments in the City of Quebec, while there is no doubt that a very great business will be done with Halifax, St. John and other cities in the maritime provinces, which are steadily growing in population and commercial importance.

But it must not be forgotten that by its connection with the Grand Trunk system the new railway will be brought into direct communication with the great cities of Chicago, Toledo, Buffalo and Portland. These advantages place the Grand Trunk Pacific Railway in an absolutely unrivalled position. The western end of the eastern division is at the City of Winnipeg, which wonderful centre is growing at an unprecedentedly rapid rate. There is every indication that it is destined to be far and away the largest and most important city in the whole of the Dominion, not even excepting the beautiful City of Toronto.

The western division starts from Winnipeg, and the line will be carried right away to the Pacific. The terminal on the coast will, it has now been decided, be Port Rupert, which will provide a short route to Asia, and not Port Simpson as was at first proposed.

It seems that, after three years of the most exhaustive explorations by a large staff of engineers for the most feasible and economical route through the Rocky Mountains, the Company has selected the Yellowhead Pass, from Edmonton to Prince Rupert, B.C., which was approved by the Canadian Government in November, 1906. The great importance of the selection of the Yellowhead route can be estimated in considering the exceptionally low and favourable grades which have been obtained, the maximum gradient through the mountains against east-bound traffic being as low as four-tenths of one per cent., or a total rise of 21 feet to the mile, for the entire distance from Prince Rupert to Edmonton, which is no greater than the extremely low grades obtained on the Prairie section of the line from Edmonton to Winnipeg. The maximum gradient against west-bound traffic for the entire distance from Edmonton to Prince Rupert is almost as favourable as that against east-bound traffic, being no greater than five-tenths of one per cent., or a total rise of 26 feet to the mile; and in crossing the mountains but one summit is encountered, the maximum altitude of which is only 3,712 feet.

These remarkable conditions exist in this northerly locality on account of the fact that the ranges of mountains along the western portion of the American continent which have their origin in Mexico or Central America reach their maximum altitude in the region of the fortieth parallel of latitude, from which they gradually recede to the north. No better illustration of these physical conditions could, perhaps, be given than a comparison of the summits and gradients of the five existing American transcontinental railways with those of the Grand Trunk Pacific, which is shown below :—

| Name of Railway. | Highest summits. | Maximum gradient in ft. per mile. | | Total ascent in feet overcome. | |
|--|-----------------------------|-----------------------------------|-------------|--------------------------------|-------------|
| | | East-bound. | West-bound. | East-bound. | West-bound. |
| Grand Trunk Pacific— Western Division— Winnipeg to Prince Rupert | 1 summit 3,712 | 21 | 26 | 6,990 | 6,890 |
| Eastern Division— Winnipeg to Moncton | | | 31 | | |
| Canadian Pacific . . . | 2 summits 5,299 4,308 | 237 | 116 | 23,106 | 23,051 |

COMPARISON OF SUMMITS AND GRADIENTS—*continued.*

| | | | | | |
|---|---|--|-----|--------|--------|
| Great Northern .. | { 3 summits 5,202 4,146 3,375 | { 116 116 116 | 116 | 15.987 | 15.305 |
| Northern Pacific.. | { 3 summits 5,569 5,532 2,849 | { 116 116 116 | 116 | 17.830 | 17.137 |
| Union Pacific system— Omaha to San Francisco | { 3 summits 8,247 7,017 5,631 | { 116 105 105 | 105 | 18.575 | 17.552 |
| Omaha to Portland .. | { 5 summits 8,247 6,953 3,537 3,936 4,204 | { 106 116 116 116 116 | 116 | 15.987 | 17.171 |
| Santa Fé System .. | { 6 summits 7,510 7,453 6,987 7,132 2,575 3,819 | { 175 185 185 185 185 185 | 185 | 34.003 | 34.506 |

From this comparison it will be observed, as already stated, that in the case of the Grand Trunk Pacific but one summit is encountered, having an altitude of 3,712 feet, with no greater grade in either direction than five-tenths of one per cent., or a rise of 26 feet to the mile, west of Winnipeg, which is increased to six-tenths of one per cent. east of Winnipeg. In the case of the Canadian Pacific two summits are surmounted, with a maximum altitude of 5,299 feet and a maximum gradient of four and one-half per cent., or 237 feet to the mile—which, however, has a compensating advantage in the magnificent scenery traversed. The Great Northern has three summits, of a maximum altitude of 5,202 feet and a maximum gradient of two and two-tenths per cent., or a total rise of 116 feet to the mile. The Northern Pacific has also three summits, having a maximum altitude of 5,569 feet and a maximum gradient of two and two-tenths per cent. The Union Pacific has three summits, having a maximum altitude of 8,247 feet and a maximum gradient of two and two-tenths per cent. in reaching Francisco, and in reaching Portland, Oregon, five summits are encountered, with a maximum altitude of 8,247 feet and a maximum gradient of two and two-tenths

per cent. The Atchison, Topeka and Sante Fé Railway has six summits, having a maximum altitude of 7,510 feet and a maximum gradient of three and three-tenths per cent.

Where the Grand Trunk Pacific will reap the first benefit from these exceptional conditions will, of course, be in the great economy and low cost of operation which can be obtained from the very commencement. That is of vast importance in the case of a newly-constructed railway, when the traffic for the time being and the revenue therefrom must of necessity be light. From present indications, however, it would appear that the period of light traffic for this new transcontinental railway will be of comparatively short duration.

With regard to the Western division and that portion thereof known as the Prairie section, extending from Winnipeg to Edmonton, it has already been conceded by the Canadian public and all who are familiar with past and present conditions in Canada that this portion of the railway should produce sufficient net revenue from the very commencement of operations to amply pay the interest on all of its securities on this section. That fact was generally accepted when the arrangement was concluded between the company and the Government providing for the construction of the railway.

After leaving Winnipeg, the main line of this Prairie section goes within a few miles of Brandon, which town is to be reached by a short branch. Proceeding north-westerly, it passes within a reasonable distance of Regina, which is also to be linked up by a branch. At Battleford, a branch will be constructed north-easterly to Prince Albert and south-westerly to Calgary. From Battleford the main line goes straight on to Edmonton, from Edmonton to the foot-hills, and practically includes the Prairie section, some 1,100 miles in length. Nearly the whole of the wonderful wheat-bearing belt of the Canadian North-West is brought into direct communication with the new railway. The three great grain-producing provinces of Manitoba, Saskatchewan and Alberta are thus brought by the new line into direct touch with Europe, *via* the ports of Halifax and St. John.

With regard to the Mountain section, however, some uncertainty was felt in connection with the traffic possibilities from the start, in consequence of which the Canadian Government, in addition to its guarantee of the principal and interest for fifty years on three-quarters of the cost, undertook to pay the interest thereon for the first seven years of operation without any recourse to the company. In view, however, of the very low grades which have been obtained through the mountains, and of the further fact that the territory through which the line will pass along its entire route to the coast is known to possess rich

mineral resources, already partly exploited, it does not appear likely that the Government have assumed an onerous undertaking. This portion of the route also contains rich agricultural districts, the importance and value of which can only be calculated when it is borne in mind that they exist in the heart of a large mineral country, where food supplies will be in increasing demand for all time to come. By reference to a map of British Columbia it will be seen that this district lies between the 52nd and 57th parallels of latitude.

It is probable that no other area in North America can equal this portion of British Columbia in her natural resources. Where there is no agriculture or pasture there is mining or lumbering to be developed, and where there are none of these—though they often occur altogether in one district—there is at least trapping and hunting. It promises, in truth, to be a northern Eldorado, which anticipation future events are bound to verify. Lying as it does far to the north, the climatic conditions have in the past been supposed to be unendurable at certain seasons of the year, but the fallacy of this impression is rapidly and surely creeping over the world on account of the reverse condition actually existing.

Before the House of Commons Agricultural Committee, recently, Mr. Elihu Stewart, Dominion Superintendent of Forestry, in testifying as to the resources and conditions concerning this far northern country, said that the growth of vegetation in the Mackenzie Basin was surprising, the sun in the summer being visible for about 20 hours out of the 24. On July 15th, at Fort Providence, near Slave Lake, on the Mackenzie River, about 550 miles north of Edmonton, Mr. Stewart said he saw ripe wheat, potatoes in flower, peas fit to use, tomatoes, turnips, rhubarb, beet, cabbage, onions and other garden vegetables. The strawberries had been ripe there for some time, and the people had currants and gooseberries. To illustrate the heat, he said that at Fort Chipewyan it had been 100 degrees in the shade for several days and nights. Indians coming from the Alaska Boundary to meet the steamer "Wrigley" had lost two dogs from heat in the Arctic Circle. He thought systematic exploration would show a surprising amount of good country, extending down from Slave Lake to Peace River. Along the Mackenzie River spruce grew clear to the shores of the Arctic Ocean. There were aspen, white poplar, balm of Gilead and birch growing as far north as Fort Macpherson. Mr. Stewart said that on Slave River he had passed a bank of burning coal about 20 miles in length near Fort Norman, which Mackenzie had reported burning in 1789!

While I was in Canada active progress was being made with the railway work both east and west of Winnipeg, and has been

continued except in so far as it was temporarily interrupted by the winter weather. Now the construction of the Western Division is being vigorously carried on, with the endeavour on the part of the company to open for traffic that portion of the line from Winnipeg to Edmonton during the present year, and in sufficient time to carry the grain crop which will be harvested next autumn. The early accomplishment of this, however, is dependent largely upon the number of labourers it may be possible to secure to perform the work.

The terminus of the railway on the Pacific Coast at Prince Rupert, B.C., is situated within 50 miles of the southern extremity of Alaska, and is reached from the Pacific Ocean *via* Dixon Entrance and Brown Passage. Much care was exercised by the company in the selection of this port, with the result that it possesses some of the greatest advantages to ocean shipping that can be found along the entire Pacific Coast. It is practically as accessible from the open sea as though it stood upon a promontory of the shore, and at the same time is thoroughly protected by Digby Island, which is situated directly in front of it, thus providing a harbour entirely sheltered from the ocean, capable of accommodating an enormous amount of shipping, and approached by a channel passage of more than half a mile in width. Curiously enough, this wonderful natural harbour has not been secured by rival concerns, owing, doubtless, to the fact that the charts of the coast are inaccurate. These charts represent that the entrance to the harbour is blocked by rocks, but actual surveys have shown that it is entirely free from such obstacles to navigation.

Prince Rupert is also about 550 miles north of Vancouver, and on account of this northerly situation it is claimed that the new transcontinental railway will possess the shortest route from Liverpool to Asiatic ports by at least two days' sail, and this saving in distance will also be realised between American Atlantic ports and trans-Pacific points. Prince Rupert lies in the centre of the salmon-fishing industry of northern British Columbia, being in the immediate vicinity of a large number of canneries, which ship their product throughout the world; and there is also to be found, off the banks of Queen Charlotte Islands, the finest halibut fishing that is known to exist, tons of the fish being taken annually to supply eastern American markets, which traffic will be greatly augmented upon the completion of transportation facilities right at hand. Indeed, it can hardly be otherwise than that a goodly portion of the enormous traffic which will result in the future from the great development which has recently been taking place in this northern country will take the railway at the nearest point, and thus avail itself of the expeditious

transportation thereby afforded, as against consuming many hours longer by water carriage to southerly ports.

There has been obtained, in the interest of the railway company, at Prince Rupert and vicinity, upwards of twenty-five thousand acres of land, and, with the object of hastening progress to the utmost, the site of the new city is now occupied by a large engineering staff, who are making the topographical survey, with the expectation on the part of the company that it will be in position to open Prince Rupert to the public and place lots on the market for sale some time within the next six months. Enquiries are being received by the company from all parts of the world as to the opportunities that offer for locating at Prince Rupert, and when the announcement is made that the place will be opened Prince Rupert will undoubtedly experience a great rush to its inauguration. No more striking proof of the valuable asset possessed by the company in Port Rupert can be furnished than the fact that in all it will possess a possible dockage of 60 miles.

The construction work of the Eastern Division, which is in charge of the Commissioners of the National Transcontinental Railway, extending from Winnipeg, passing through the City of Quebec to Moncton, New Brunswick, is also in hand, contracts having been let in 1906 for the building of about 500 miles, and tenders for an additional 500 miles are now in the hands of the Commissioners. At the inception of the Grand Trunk Pacific project the Eastern Division was regarded as the least promising portion of the undertaking, and for this reason the cost of the construction of the entire main line east of Winnipeg was undertaken by the Canadian Government. The agreement was that upon completion the Government will lease this section of the railway to the Grand Trunk Pacific Company for a period of 50 years, free of rental for the first seven years, after which the amount payable by the company to the Government will be 3 per cent. on the cost of construction, the company being required to pay the operating expenses of the line from the time it is taken over. As explorations proceed through this territory, however, the impression is being rapidly dispelled that it will be unproductive. It may be appropriately designated as the mineral belt of Eastern Canada, wherein are located the now famous Cobalt deposits, as well as nickel, copper and all the baser metals, and possessing large and valuable tracts of timber.

To assist in the construction of the necessary branches to Fort William and Port Arthur the Provincial Government of Ontario has agreed to grant the company a subsidy of 2,000 dollars cash and 6,000 acres of land per mile. A close examination of the terms upon which the railway is to be

constructed impresses me with the great wisdom and foresight shown by the Government of the Dominion. At first sight it seemed as if the financial arrangements were altogether of a one-sided character, but, after careful consideration, I am convinced that the arrangements are equitable in the extreme. Generally speaking, they provide that, when carried out, a railway will be constructed at the expense of the Government, which, with the lines of a private corporation, will form one system under the entire control, management and operation of the Grand Trunk Pacific Company. In fact, taking the entire project as a whole, the reader can appreciate how difficult it was at the outset to comprehend the far-reaching effect and the enormous country that would be opened up by the accomplishment of so gigantic an undertaking, especially considering that a large portion of it was to pass through virgin country. Its gradual evolution is, however, bearing witness from day to day that it will more than justify the wisdom of its promoters and stand as an everlasting monument to their enterprise and courage, and to the Grand Trunk Railway Company of Canada for thus further entrenching its position in the Dominion.

The conclusion at which I arrived from the interviews I had with the gentlemen whose names I mentioned at the commencement of this chapter, and from independent enquiries subsequently made and supplemented by the most recent information which I have been able to obtain, is that there are wonderful possibilities for the Grand Trunk Pacific. The main route and the directions of the various branches have been selected with the greatest possible judgment. Not only have present conditions been taken into consideration, but intelligent anticipation of events has had great influence in guiding the selection. As for the enthusiasm and energy apparent in the work of the leading men, one can hope that they will be amply rewarded by achievement, for, after all, it is difficult to find words to adequately represent the vastness of the undertaking, the greatness of the interests involved, and the immense potentialities which lie before it.

CONCLUSIONS :

That the new Transcontinental Railway is a magnificent project.

That its scope and possible future influence on the prosperity of Canada are scarcely yet realised even there.

That the men who are at the head of affairs are earnest, far-sighted and clever organisers.

That the Dominion Government's co-operation, financially and otherwise, is enlightened policy.

That the route traversed by the Railway has great physical and commercial advantages.

CONCLUSIONS *continued.*

That the gradients from coast to coast are the most favourable of any of the existing North American transcontinental railway systems.

That Prince Rupert bids fair to become a great Pacific Port.

That the Railway will confer inestimable advantages in opening up the many and varied natural resources of British Columbia.

That the potentialities of the project are manifestly vast.

CHAPTER VI.

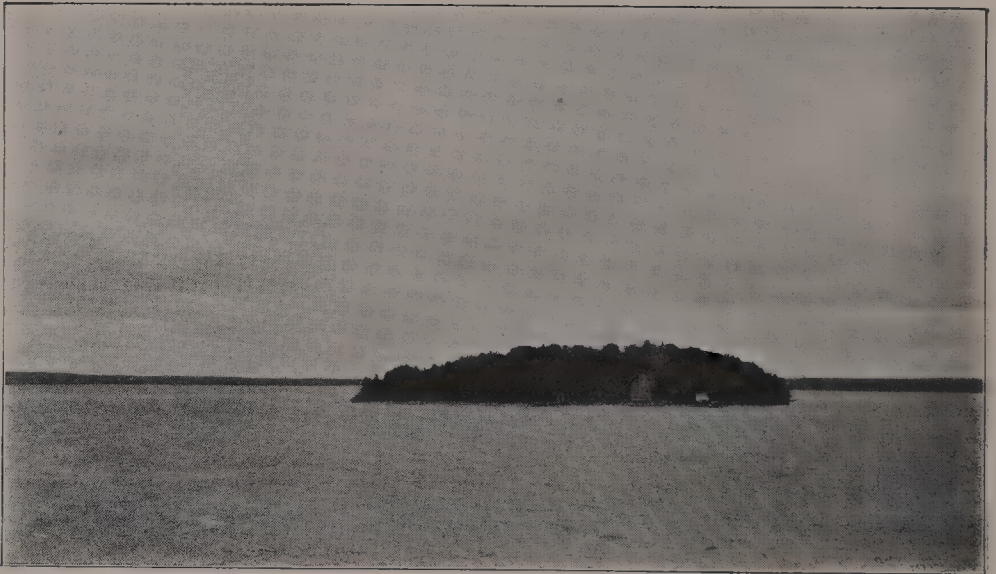
THE CANADIAN NORTHERN RAILWAY.

RAILWAY ENTERPRISE AND CANADIAN INDUSTRIAL DEVELOPMENT.—OVER THE CANADIAN NORTHERN MAIN LINE.—ABOUNDING EVIDENCES OF PROSPERITY.—THE ROAD-BED.—THE COMPANY'S FINANCIAL POSITION.—AN ASTUTE POLICY.—A STRATEGICAL ACQUISITION.—THE CANADIAN NORTHERN ONTARIO RAILWAY.—MESSRS. WILLIAM MACKENZIE AND D. D. MANN, AND THEIR ABLE COADJUTORS.

THE perspective of time is essential for a true appreciation of the magnificent development work which has been done by the Canadian Northern Railway Company in the North-West Territories of the Dominion. But no business man can view the results already achieved under the ægis of Mr. Mackenzie and Mr. Mann without forthwith feeling bound to characterise their enterprise as one of the most important ever achieved for the British Empire. Empire builders they are in the truest sense of the word, who will rank for this generation with Rhodes, Seddon and Strathcona. I have singled out this part of the great system of railways they have either built or secured control of as their special claim to commercial distinction, because its construction gave the initial impulse to the opening up to agriculture of those wonderful prairie lands which are already producing 100 million bushels of wheat a year, and which are rapidly becoming the granary of the world, both Oriental and Occidental.

At the present time we see the manufacturing industries of Ontario and Quebec advancing by leaps and bounds. To what is this due but to the development of the agricultural riches of the West? Other great and wonderful railway systems, destined to spread like a web from one side of the continent to the other, are being brought into existence. To what is this owing but to the same cause? From all parts of the world settlers are flocking to the Dominion. Why? Because work in plenty is to be obtained on the land and in the industrial trades, and because affluence is within reach of all possessing a strong arm, a resolute heart, and a capable head.

For fifty years Canada had lain practically dormant. Unmoved, she had seen across her border the irresistible rise of the greatest manufacturing and agricultural country in the world, and she had made but feeble attempts to develop the all but inexhaustible resources lying within her own gates. Millions of acres of the finest wheat land on the continent of America had remained uncultivated because there was apparently not sufficient enterprise in the country to lay a line of rails across their broad bosom, or if there was the enterprise, the master mind to direct it had not arisen. Such a man appeared in William Mackenzie, who, for the vast area of the busy, hustling, enterprising, undaunted Canada of to-day, did the pioneer work, and faced the risks.



"A PRECIOUS STONE SET IN A SILVER SEA."

During my visit to Canada I had the opportunity of traversing the main line from beginning to end. Starting at Port Arthur, I was able to appreciate the great value of the water frontage, the docks, the coal wharves and the grain elevators which the company has acquired or constructed at this the head of the Great Lakes. On the journey to Winnipeg the wonderful mineral resources of the country were clearly apparent. For no less than ten miles the Great Atikokan Iron Range runs parallel with the railway. I ascertained that the Saw Mill and Hawk Lake gold mining districts were tributary to the track; that much of the district had been proved to be exceedingly rich in copper; and that already many of the companies were shipping ore.

Passing along, the Couthiching Falls are passed. Extensive works have been erected to use the power. From here one

quickly passes into the Rainy River Valley, which is now an exceedingly productive agricultural country. Mixed farming and stock-raising are both great successes. Leaving here, a most wonderful lumber district is reached, which has been worked for years with profit. From Sprague branches off the South-Western line of the railway to Regina *via* Morris and Hartney, itself a great trunk line of 660 miles, with innumerable feeder lines throughout the great South-West Manitoba wheatfields, like the feelers of an octopus. I was told that there was one stretch of wheat between Morris and Hartney of 149 miles by 20 miles broad without a single break. The main line runs into a prairie country which has been well settled—probably longer than any other land in Manitoba.



A LAKE-SIDE VIEW IN THE WEST.

Evidences of prosperity abound on all sides. For instance, at St. Boniface there are the Western Canada Flour Mills, which have a capacity of 4,000 barrels a day. Very shortly afterwards the train arrives at that interesting gateway—the half-way house, as it were—between the East and the West: the go-ahead city of Winnipeg. All the way the carriage in which I travelled had run smoothly, denoting that the road-bed was in excellent condition. There had been no steep gradients or violent curves, and it was difficult to believe that one was running on a practically new road. At Winnipeg it was evident that the Company had excellent terminal facilities in the very heart of the town. I do not know what the acreage is, but it certainly must be very extensive.

From Winnipeg I started on a thousand-mile journey to

Edmonton. In other chapters I have endeavoured to describe the wonders of the West—of thriving cities springing up, of the countless grain elevators, of the millions of acres of prairie land being taken up by hardy American and English farmers, of the splendid openings there still are for all who can do an honest day's work, and of the life-giving "energising air" and beautiful sunshine. To me it seemed small wonder that the people were full of vitality and hope; that work seemed a pleasure and idleness a crime. In such a climate, with everyone prospering, what else could be expected?

Knowing with what rapidity the railway had been constructed, I naturally examined the road-bed very critically. It was far better than I expected; honest work had been put into its construction, and there were no evidences of future trouble. Near



ON THE CANADIAN NORTHERN RAILWAY: A TYPICAL WESTERN STATION.

Edmonton the line had not been fully ballasted, but I heard that was owing to the impossibility of obtaining labour. The rolling-stock seemed to be fully up to all reasonable requirements, and the *personnel* of the staff struck me as being of a very high character. I did not go along the northerly line to Prince Albert. Hence comes most of the supply of sturgeon and "Russian" caviare. This line passes through a wide timber belt, wherein there are, I heard on excellent authority, splendid openings for both capital and labour. Nor was I able to inspect the innumerable branch lines and controlled railways, but I saw enough to convince me of the great possibilities of this startling enterprise.

Perhaps, in order to give some idea of its magnitude and the success which has attended the Canadian Northern system, I

may be permitted to cite some figures. There are now upwards of 3,000 miles in actual operation. A road is being constructed from Parry Sound to that busy centre, Sudbury. It is only a question of a short time before a road will be commenced from French River to a point near Ottawa, where it will connect with the Canadian Northern Quebec system to Montreal and Quebec. The Toronto to French River section of the railway is now open for traffic. Many other lines are projected in other parts of Ontario. In Nova Scotia lines have been built from Halifax to Yarmouth—a distance of 250 miles—and from Inverness to Point Tupper—69 miles—and control has been further secured of several existing railways which will act as valuable feeders for the main system. This is necessarily a very incomplete and



A PRAIRIE SCENE ON THE CANADIAN NORTHERN RAILWAY.

imperfect *résumé* of the company's interests, but it will be sufficient to give some idea of their vastness and value.

Now as to the financial side of the undertaking. It is a wonderful but absolute fact that from the completion of the first hundred miles of the road the company has earned its fixed charges and operating expenses. What other great railway in the world, I wonder, could substantiate such a claim? Right from the commencement of its history to the present day the record is one of continuous progress. Take these figures for instance: in three years the yearly earnings of the road have increased from 1,335,000 dollars to 4,190,000 dollars. In grain traffic the increase has been from 9,395,000 bushels to the estimated handling of 17,000,000 bushels of the crop of 1905. Lumber shipments

have increased from 85,551,000 ft. for the fiscal year 1902-3 to 141,614,000 ft. for the year 1904-5. In equipment, the number of locomotive engines has increased from 47 to 116, and of cars from 1,820 to 4,900. In the months of July, August, September, October and the first half of November last, the gross traffic receipts amounted to 2,990,000 dollars, an increase of no less than 1,053,300 dollars in 20 weeks. Surely these facts speak volumes.

Now, what has been the policy of the Canadian Northern Railway? To start at the beginning, the utmost secrecy seems to have been observed in the initial stages. The result of this was that the company was able to secure valuable land at Port Arthur, Winnipeg and other terminal points at reasonable prices.



A PRAIRIE SETTLEMENT.

In other words, the knowledge that the land was to be used for railway purposes had not leaked out, and the company, therefore, has reaped the benefit of its own improvements.

As a result of this let Winnipeg be instanced. At the lowest computation, the land owned by the company in this prosperous and go-ahead city has increased fifty to sixty times in value, and investigation would probably show that there has been a corresponding increase in the value of the company's land in the various other terminals. The next point to be noted is that the company from the first adopted the policy of building through stretches of country where there was already a big business available, or where the existence of a railway was absolutely certain to immediately create such a business. They took

possession of the wheat areas of South-Western Manitoba and the great Saskatchewan Valley, with a network of two thousand miles of rails, and of the coalfields of Nova Scotia ; they obtained a dominating position on the Pacific for future developments ; and they placed themselves, by occupying strategic positions, on equal terms with other railways in Ontario. Since this they have secured possession of some of the best parts of Quebec.

Right from the commencement they have relied upon steamship facilities or running powers over other companies' lines to cover the long gaps of fruitless country. Later on, no doubt, these gaps will be filled up by their own rails, but for the moment construction is going on very slowly on account of the cost of material and men. Apparently those responsible for the manage-



A TYPICAL WESTERN TOWN IN THE MAKING.

ment of the company have said to themselves : " We have got a good paying railway, and we will therefore confine ourselves to building two lines in Ontario—one from Ottawa to French River, and another from Ottawa to Toronto. With these two lines completed our working system will be finished, and we can wait quite passively until such time as the condition of the labour market and the prices of material make it advisable for us to continue."

But, although the company appears to contemplate the curtailment of construction work for a time, it is busy strengthening its position in a variety of ways. For instance, officials of the company are at present in the West in connection with the taking over from the Canadian Pacific of the Regina, Qu'Appelle and

Long Lake road. As a piece of commercial strategy, the purchase of this road is of great importance to the Canadian Northern Railway Company. With their new line now under construction between Brandon and Regina they will have a belt of rails around Manitoba and Saskatchewan which, with feeders, will enable them to bid for a share of the traffic throughout an immense and productive area. It will also form a valuable link in connection with the company's Hudson's Bay line, which is now being built. It is estimated that this year there will be 6,000,000 bushels of wheat shipped from points along it between Regina and Prince Albert.

I understand it is not the intention of the Canadian Northern Railway officials to open up the Peace River country north of Edmonton at the present time, for the reasons I have already given. It is true that they are building a branch of 100 miles to Athabasca Landing, 20 miles of which have been completed, but this will be the extent of their efforts in this direction for several years at least. By the time the contractors stop track-laying it is expected that 100 miles will have been graded and some 70 miles of track laid on the company's line to Hudson's Bay. The terminus of this branch on Hudson's Bay will be Fort Churchill, between which point and Europe a new steamship service will be inaugurated.

It is reported that the company, and the various financial organisations with which they have relations, now own a controlling interest in the Quebec and Lake St. John Railway, and contemplate sweeping changes in the administration of the road. The Canadian Northern Railway will now probably use both the valuable dock and other terminals of the Quebec and Lake St. John Railway at Quebec and Chicoutimi, and also all their approaches to the city of Quebec. On November 19th last another avenue for commerce and trade was opened with the inauguration of a train service between Toronto and Parry Sound on the new Canadian Northern Ontario Railway.

The extension of the Canadian Northern Ontario Railway from Parry Sound to Sudbury was, I found, now being pushed ahead as rapidly as scarcity of labour would permit, and the line is expected to be open for traffic all the way to Sudbury by next autumn. The new lines in Ontario, connecting with the Canadian Northern Quebec Railway, will give direct access to Ottawa, Quebec and Montreal, from all points in Western Canada, and the extension of the main line from Edmonton to a point on the Pacific Coast will come in due course. A glance at the map will show the importance to Toronto of the opening of this new railway to Parry Sound and Sudbury. Amongst other things, it will preserve for Toronto the trade of the northern country, to which its geographical position entitles it.

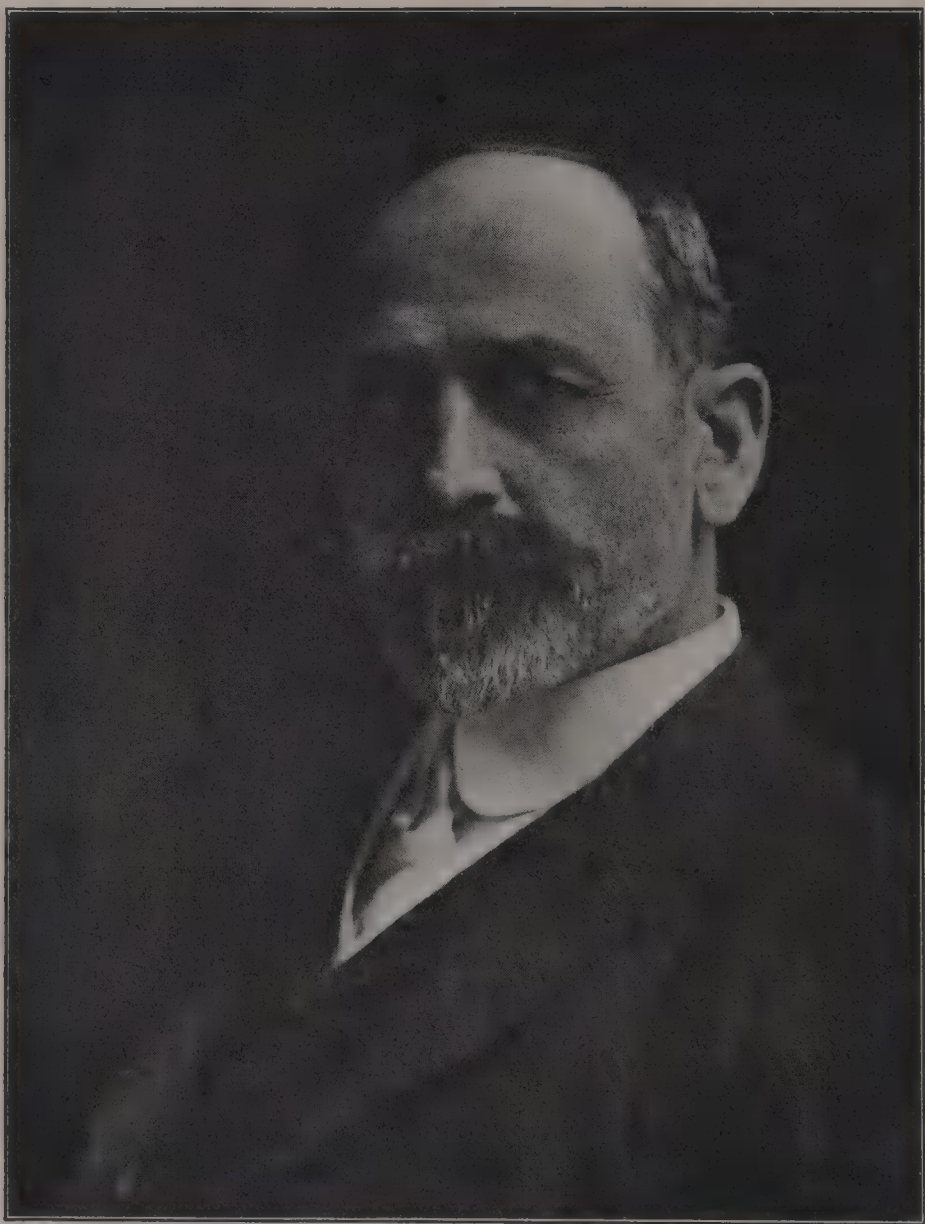
Two entirely different regions, and each a traffic-producer of its own kind, are served by the new road. Leaving Toronto, the road runs through a rich agricultural country, which will feel the benefits of a new road in the way of better communication with the outer world. The northern half of the route, terminating at Parry Sound, the chief centre of the lumbering industry in Northern Ontario, embraces the famous Muskoka region, whither so many thousand tourists flock during the holiday season. The objective point of this new railway for industrial reasons is, however, the Moose Mountain district, where rich iron-ore deposits are located. The particular natural facilities of Toronto



FUTURE EMPIRE BUILDERS: CHILDREN OF THE WEST.

for assembling coal will make this the seat of great iron and steel making establishments, which will be fed by the resources of the northern country.

A large part of the development of this northern country will be consequent upon connections being established with what will eventually be the three transcontinental railways—the Canadian Pacific Railway, the Canadian Northern Railway, and the Grand Trunk Pacific Railway. Then a heavy traffic must necessarily find its way from the West to Toronto. During the season of navigation the increase of bulk freight delivered at such upper lake ports as Parry Sound will undoubtedly be rapid with the three railways available to handle consignments. Toronto stands in direct relation to this great trend of trade.



Mr. WILLIAM MACKENZIE,
President of the Canadian Northern Railway Company.

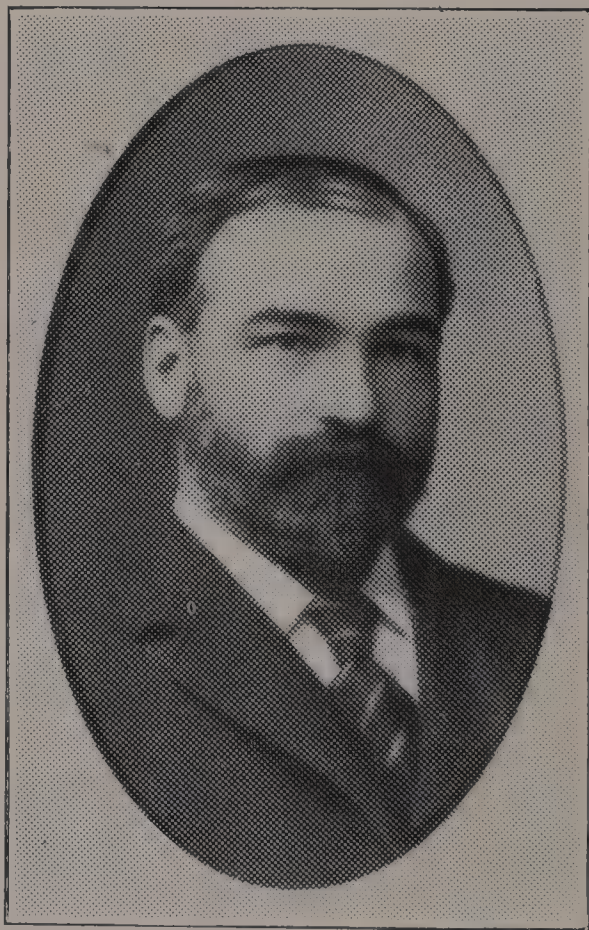
For many years Dépôt Harbour, on Georgian Bay, having direct steamship communication with Duluth, Chicago and Port Arthur, has been the point of transshipment of many million bushels of grain yearly. It is only fair to assume that the new Canadian Northern Railway, controlling the traffic in the West, will have at Parry Sound and French Rivera a large share in this movement of the grain, which was formerly controlled largely by the Canada Atlantic Railway. With facilities enabling the railways to handle a greater volume of the wheat-shipment business, it is highly probable that this route will be favoured by shippers much more in the future than formerly.

To sum up the position of the Canadian Northern Railway: it is an unquestionable fact that it holds a commanding position as joining the manufactories of Ontario with the agricultural regions of the North-West by the shortest and—it is claimed—ininitely the cheapest route; that every yard of the line has been planned to tap existing traffic; that the railway was built at a period when steel, labour and lumber were 50 per cent. below the prices now existing; that the company was formed when railways were badly required by the people themselves, and consequently it was possible to obtain rich subsidies from the Governments of Canada, the North-West Territories and the Provinces of Ontario and Manitoba; and that, in consequence of this, the debt of the company is abnormally low, probably not more than three-fourths of that of the Canadian Pacific Railway per mile, and three-fifths of what the bonding of the Grand Trunk Pacific will be when it is constructed and fully equipped. From all these striking and illustrative facts I deduce the conclusion that if Grand Trunk Railway Debenture stock is fully worth 112, and if Grand Trunk Pacific (unconstructed) Guaranteed Debenture is worth 102—and of these values I have no doubt—Canadian Northern Quebec and Qu'Appelle, Long Lake and Saskatchewan (in full operation) Guaranteed Debenture stock is worth 105 at the least.

Now as to the *personnel* responsible for the inception and carrying out of this great enterprise: first and foremost, towering like an intellectual giant, occurs the name of Mr. William Mackenzie. Personally, it was not my good fortune to meet him during my visit to Canada, but from the moment I arrived at Port Arthur to the time I left the system at Edmonton I felt his pervading influence. To me it was quickly apparent that in all Canada there is no man in whom there is more implicit belief. Nor is this surprising when it is remembered that all his business enterprises have been great successes; he has made two blades of grass grow where hitherto there had only been one; he has brought into productiveness millions of acres of land which never before

had known the cultivator's hand. His brain has stimulated a whole continent into industrial activity; he has made the Canadians believe in themselves and in their country, and, what perhaps is of equal importance, he has secured the confidence of capital in the Old World as well as the New.

On all sides I heard that he had a most magnetic personality—that no one could be with him even a short time without being



MR. D. D. MANN,

Vice-President of the Canadian Northern Railway Company.

profoundly impressed with his intellectual capabilities, daring originality of thought, breadth of vision and intense earnestness. Absolutely absorbed in his work, yet, it is said, he is quite indifferent to personal gain. In the same way that many men of lofty purpose devote their lives to the management of public affairs, so Mr. William Mackenzie bends all his great abilities to the commercial expansion of the company of which he is the official head.

Since the foregoing lines were written I have met Mr. Mackenzie in London, and it was quickly apparent to me that the views I had formed, from hearsay, of his personality did not require any revision. Perhaps, though, I may add that it seemed to me there was only one "person" he dreaded more than the newspaper interviewer, and "he" was not of this world.

Associated with Mr. Mackenzie is Mr. D. D. Mann. Indeed, one seldom hears these gentlemen mentioned separately. Mackenzie and Mann are invariably spoken of as responsible for the great, wonderful and varied enterprise associated with the Canadian Northern Railway. Mr. Mann is unquestionably one of the greatest railway constructors of the day. To me it seemed that his genius lay not so much in the direction of overcoming obstacles raised by Nature as in avoiding them. This is plainly observable by the absence of steep gradients, not only in regard to the railway already constructed, even through the rugged country from Port Arthur, but in the selection of the route of the railway through the Rocky Mountains. For instance, the steepest grade through the mountains to the Pacific Coast will only be four-tenths of one per cent.

The tremendous energy with which he forces a line, once projected, to completion is known to every inhabitant of the West. Personally Mr. Mann is the very antithesis of his coadjutor. Absolutely incapable of any of the intellectual fireworks of his great partner, he has a reserve force of tireless energy which nothing seems to exhaust or even affect, great powers of consolidating and bringing into line apparently diverse interests, and a knowledge of railway construction work not surpassed by any man on the continent. I had the pleasure of personally meeting him many times during my visit to Toronto, and the indelible impression stamped on my mind was that the man was the very personification of Force. I should have stated that Mr. Mann is the vice-president of the Canadian Northern Railway.

Now I come to Mr. D. B. Hanna, the third vice-president of the company, a different personality altogether: a man evidently of wide and varied experience, a splendid organiser, and an indefatigable worker—full of enthusiasm, an ardent believer in his chief, and imbued with the loftiest conceptions of the future of the great enterprise so largely controlled and managed by himself. I do not know, but I should imagine that, like so many other leading Canadians of to-day, he has been the architect of his own fortunes. If this be so, no man would be more proud, I am certain, to acknowledge it than Mr. D. B. Hanna. To keep control of the various threads of this tremendous organisation must involve an enormous mental and physical strain. But nothing of this was apparent. Like most other exceedingly busy

men, he always appeared to have an hour to spare for the amenities of social life. Personally, I was indebted to him for many kindnesses during my stay, and long after I have forgotten many of the wonders of this marvellous land I shall remember my genial, stalwart friend.

While in Winnipeg I had the pleasure of meeting Colonel A. D. Davidson, who is frequently referred to in the Canadian papers as "the Empire Opener." Owing to the great organising ability of this gentleman, of whom a portrait appears in another



Mr. R. M. HORNE PAYNE,
Director of the Canadian Northern Railway Company.

part of this volume, about two-thirds of the agriculturists who have emigrated to Canada during the last three years have settled on territory opened up by the Canadian Northern Railway. He is the head of probably the largest land organisation in the world, having under his direct control three thousand agents. He has made all the arrangements for the settlement of the great rush of Americans to the North-West during the past five years, and it was owing to his enterprise that the extraordinary fertility of the Saskatchewan Valley became generally known. Like all the other heads of the Canadian Northern Railway, he impressed me as being possessed of wonderful energy and concentration.

Colonel Davidson is a Canadian, but he has plenty of American "hustle," and it is impossible to be with him long without being convinced of his honesty of purpose, the soundness of his judgment, and the breadth of his views in regard to the future of Canada. He has recently paid several visits to England for the purpose of organising emigration from the United Kingdom, as he is strongly of opinion that what Canada wants above all is British blood, bone, and sinew.

It would not be fitting to conclude my references to the men to whom the Canadian Northern Railway owes its being without making some mention of Mr. R. M. Horne Payne. This gentleman, though now resident in England, knows his Canada from end to end. To his financial genius, high reputation and wide experience the successful financing of the undertaking, up to its present stage, has been very largely due. He is the English director of the railway, and I am quite certain that the interests of the English bondholders could not be in more capable hands. While in Canada I heard many testimonies to the esteem in which his judgment is held, to the admiration of his financial abilities, and to the earnestness and enthusiasm with which he practically devotes his life to the interests of the company.

CONCLUSIONS :

That the Canadian Northern Railway has secured a dominating position in the Dominion.

That Mackenzie and Mann are two of the ablest men in Canada.

That the financial position of the Company is exceptionally strong.

That from the completion of the first 100 miles the Company has earned its fixed charges and operating expenses.

That there are splendid openings for both capital and labour in the North-West, which is being in an increasingly large a measure opened up by the Canadian Northern Railway.

CHAPTER VII.

PORT ARTHUR AND ITS GRAIN ELEVATORS: A GREAT CANADIAN NORTHERN RAIL- WAY UNDERTAKING.

AFTER FIVE YEARS.—PORT ARTHUR AS THE LAKE TERMINAL OF THE CANADIAN NORTHERN RAILWAY.—THE LARGEST GRAIN ELEVATORS IN THE WORLD.—HOW OPERATIONS ARE CONDUCTED AT THE GRAIN ELEVATORS.—THE CLEANING AND CONDITIONING OF THE WHEAT.—THE POWER EQUIPMENT, AND THE WHARFAGE AND DOCK ACCOMMODATION.

ONE of the dominating factors in the rapidity with which the natural resources of the Dominion of Canada are being developed is the phenomenal enterprise which characterises the administration of the Canadian railways. The railways of the Dominion are, in short, much more than railways—they do not regard their functions as beginning and ending in the handling of freight. Their executive policy is, as I have previously indicated, based to a very large extent on the work of pioneering and development. The laying down of the railway track is but a means to a greater end: it represents only a segmentary portion of a much more comprehensive ideal. So far as the Canadian North-West is concerned, the truth of this assumption is conspicuously shown in the case of the Canadian Northern Railway Company, whose name, accordingly, has latterly become increasingly familiar to, and favourably regarded by, investors in this country who interest themselves in Canadian securities.

In the last chapter I dealt in some detail with the operations and scope of the Canadian Northern Railway, but I propose in this chapter to confine myself more particularly to the terminal point on the shores of Lake Superior of that system, where, owing to the enterprise of the company, there has risen from the smallest of beginnings, and within the space of less than five years, one of the most remarkable examples of municipal and industrial creative work which later times in Western Canada have witnessed. During the period thus covered the name, Port Arthur, has been associated with the grimmest story in all the

history of war ; but that was in the Far East. In the Great West the arts of peace have triumphed, and Port Arthur in Ontario is an eloquent monument to their greatness.

The phenomenally rapid growth of Port Arthur may be understood when I say that, so recently as 1901, it was only an inconsiderable village of some 2,000 inhabitants. Such distinction as it then enjoyed arose from the fact of its possession as its then most important asset of a fine natural situation on the north-west shore of Lake Superior, and from its being a station on the Canadian Pacific Railway between and next to Fort William on the one side and Nipigon on the other. Fort William, the twin sister city of Port Arthur, had already attained a position of great importance as the Lake terminal of the Canadian Pacific Railway, and presented various evidences of increasing industrial activities, but the only other settlements in the district of any particular note were Fort Francis and Rainy River.

Never, probably, in the history of the opening up of the western portion of the Lake District have the advantages to be derived from the development of railway communication been more convincingly demonstrated than in the case of Port Arthur and its immediate neighbourhood ; and now, after a lapse of five years, the visitor of to-day finds in Port Arthur a prosperous and progressive city of more than 10,000 inhabitants—a city, perhaps, as the severe critic might be apt to say, of mushroom growth, but, if so, of a very substantial quality at that, and of the sort that comes to stay. Already the city is, and has reason to be, proud of its almost unexampled industrial achievements. It is proud of its great grain elevators, the largest, I believe, in the world ; proud, too, it is of its great docks, and of the huge extent of its dealings in coal and iron-ore, of its vast ironworks and of its already extensive and increasing list of auxiliary enterprises. Prosperous, and in a sense dominating, as it is in its relation to the western portion of the Province of Ontario, Port Arthur is as yet in its infancy, but its infancy is that of an industrial giant.

Under all these circumstances it was a matter of regret to me that considerations of time and opportunity did not permit me to make a detailed investigation of all that was of prospective interest to the British investor in that wonderful new-born city. My stay was short, and my examinations of the local industrial resources were correspondingly cursory, but they were, nevertheless, sufficient to impress me forcibly alike as to their existing capabilities and the potentialities of their future.

The making of Port Arthur has, of course, been its selection as the Lake terminal of the Canadian Northern Railway, corresponding in this particular to the position of Fort William in its

relation to the Canadian Pacific Railway. The Canadian Northern, indeed, owns three-fourths of the river front in fee-simple. From a geographical point of view the situation of Port Arthur is not surpassed in all the region of the Great Lakes, and as time advances its importance as a centre for traffic—land-borne and lake-borne alike—and of industrial activity is destined to be of the highest significance in the future development of the vast west, central, and north-western areas of the Dominion of Canada. It may in some particulars be regarded as a natural gateway from Western Ontario to the vast territories which the later developments of the Canadian Northern Railway have been largely instrumental in opening up—the great areas of agricultural, timber and mineral country, which may be said to commence at Grandview, in Manitoba, and extend to Edmonton by way of Battleford, traversing the great wheat belt of Saskatchewan and Northern Alberta, and again in the direction of Prince Albert through the region of the Swan River and the Carrot River Valleys. Those areas are in a very literal sense contributory industrial feeders of the granaries and flour mills, the factories and sawmills, and the great metallurgical establishments of Ontario and Quebec.

What impressed me most at Port Arthur were the docks and the grain elevators, and, at the latter represent the show feature of the place, if I may so express myself, I shall, in the course of this brief account of an industrial centre of infinite resource, deal with them first. The Port Arthur grain elevators are claimed to be, as I have already stated, the largest in the world, and I believe the claim, which is the city's proudest boast, is fully justified. If so, the reader who may have seen or heard something of the leviathan grain elevators of the great wheat centres of Canada and the United States will be able to appreciate the hugeness of their dimensions and the astonishing completeness of their mechanical equipment.

These elevator constructions, which represent far and away the most commanding erections in the district, being landmarks which cannot be ignored, from whatever point of view they are observed, comprise two working buildings, or "elevators" proper, as the massive structures with their immense aggregations of mechanisms are generally called, which form the wings of the entire installation. Between them are arranged, in two groups of buildings, no fewer than 160 storage tanks for wheat. The handling capacity of each elevator house is 2,500,000 bushels, and although enormous quantities of grain are being constantly handled, the whole working resources of each establishment only require the supplementary labour of 100 men, to such a degree of smooth and dependable working efficiency has the

mechanical labour-saving equipment been reduced. These elevators were built and are owned by the Canadian Northern Railway Company, and are specifically mortgaged to Four per Cent. Debenture stock.

I should, perhaps, mention at this stage that the entire wheat trade of the great Canadian North-West, alike as to the grading of the grain and the weighing at the terminal point, which in this case is Port Arthur, is under Government supervision and control. The wheat is graded at Winnipeg by a Government inspector, and this inspection is again checked at the Lake front at Port Arthur, or, in the case of Canadian-Pacific-borne wheat, at the neighbouring terminal port of Fort William. A Government official superintends the weighing at Port Arthur, and a certificate of weight is issued for each car-load—a load averaging about 1,000 bushels. Then all grain is binned according to grade, no specific owner's wheat being binned separately, the entire details of the procedure being in accordance with the provisions of the Manitoba Grain Act.

In practice, when a car arrives laden with grain to be stored and shipped by steamer, notice is first of all received from the freight office that a car, or cars, have arrived for storage. The foreman then obtains from the inspector information as to the precise grade of the wheat, and inspector and foreman next make a joint examination of the car to ascertain any evidence there may be of possible leakage. The inspector also decides whether or not it is necessary to clean the wheat. Let me assume, now, that the wheat contained in a particular car is of the grade known as "Three Northern, Clean 4 per cent.," which is expressed as "3° C. 4 per cent." This would mean that the wheat will grade as "Three Northern" after 4 per cent. of dirt of various kinds has been removed. The elevator would, therefore, be allowed that much in which to make the wheat grade, no charge being made for the cleaning.

The car is then placed in front of an elevator "leg," the operative factor in which is an endless belt having steel buckets bolted on at intervals of 12 inches. This belt, which travels at the rate of 650 feet per minute, goes to the top of the building and returns to a pulley which is located in a sink about eight or ten feet below the railway track on which the car stands. This leg connects at the top of the building with a garner, which in turn connects with a scale having a capacity of as many as 85,000 lbs., being, in fact, capable of weighing the entire contents of the car at one operation. The door of the car is raised, allowing the grain to fall into the sink. Two men then enter the car, and, by the aid of power shovels, operated by means of a line shaft and rope, these men, moving backwards and forwards

alternately, succeed in completely removing the contents of the car.

By the time the wheat has been removed to the top of the elevator building, and is lying in the scale ready to be weighed, notice has been given by the man in charge on the ground floor, and the weight is noted by the Government weighman and also by the man in charge of the weighroom, a weighing registration slip having been punched in duplicate. From the scale the grain falls by gravitation to the cleaning bin, and thence passes through the cleaning machinery, after which it is elevated up another "leg," re-weighed if necessary, and ultimately deposited with other grain of a corresponding grade. When the wheat is ordered out for shipment the owner is required to produce the original shipping receipts given at the point from which the car was despatched, and, after all charges for freight, storage, &c., have been paid, the car is delivered. I may say that the charges for subsequent storage are $\frac{3}{4}$ of a cent per bushel for the first 15 days, and for each period of 30 days, or part thereof, an additional $\frac{3}{4}$ of a cent, which charges also cover loss by fire.

In the matter of mechanical detail and equipment for the rapid and economical handling of grain, the Canadian Northern Railway Company's plant at Port Arthur is unequalled on the American Continent. I have mentioned the two working houses or elevators: the 160 storage bins represent correspondingly two storage plants, having a combined storage capacity of 6,350,000 bushels. These may either be worked separately or in combination. Each of the working houses has ten "legs," equivalent to a working capacity of 10,000 bushels per hour. If, or when, desired, all of these "legs" may be used for passing the grain from the elevators to the ships lying at the wharves alongside, and under such circumstances the capacity of each working house would be 100,000 bushels per hour. Ordinarily, five legs are in operation unloading grain from the freight cars, and when this is being done the shipping capacity is necessarily reduced to 50,000 bushels per hour.

In order to facilitate the rapid unloading of cars, two railway tracks are provided, providing accommodation outside the buildings for 15 cars. Five cars are brought forward on each track alternately, and are unloaded by means of the "Clark" automatic shovel. The unloading capacity of each building is from $12\frac{1}{2}$ to 15 cars per hour, the combined unloading capacity of both working buildings being from 250 to 300 cars in a ten-hours' day, the unloading in no way interfering with the shipping.

The process of cleaning the grain is necessarily one of supreme importance. Each working house is equipped with five 9-monitor cleaners, each of which has a capacity of 1,500 to 2,000 bushels

per hour, according to the character of the work, some wheats, of course, requiring much more drastic cleaning treatment than others. As I have already indicated, no extra charge is made for this operation, the revenue derived from the sale of the screenings being sufficient to cover the expense involved—a fact which suggests various reflections, one of which is necessarily complimentary to the efficiency of the cleaning process.

In order to maintain the grain in good condition it is necessary to re-elevate it from time to time, and by so doing enable it to be thoroughly aerated. For this work a charge of one-eighth of a cent per bushel is made, and, if the wheat is properly dealt with in this way, it may be maintained in sound condition for an indefinite period. The tanks in which the grain is stored are built of hollow tile, strengthened by steel bands and embedded in concrete. They are of circular formation, and measure 85 feet deep by 21 feet in diameter, being grouped in clusters of 80, and the interstices between them being also utilised. No wood is used in connection with their construction, and while they are absolutely fireproof they are also non-heat-conducting.

The filling of this building with grain is accomplished by means of five rubber conveyor belts. Each belt is 36 inches wide and has a conveying capacity of 16,000 bushels per hour, and is also provided with a form of self-propelling tripper, whose function it is to effect the distribution of the grain. The emptying of the tanks is accomplished by the employment of five conveyors, which work in tunnels underneath the bottom of the building. These conveyors, like those first mentioned, are of rubber, only they are 30 inches in width, instead of 36, and have a capacity of 10,000 bushels per hour, or a combined capacity of 50,000 bushels per hour, which represents the total quantity of grain which can be shipped from the storage building alone through one working house per hour. If both houses are working simultaneously, then, of course, 100,000 bushels can be handled per hour.

I should mention also that the working houses are equipped throughout with a dust-collecting plant, which was designed and installed, I believe, by Messrs. H. L. Day and Co., of Minneapolis. It should be added, too, that the engine-power required to operate the elevator-houses aggregates 650 horse-power. Of this total each working building absorbs 40 horse-power, while the cleaner in each house requires five horse-power, and the conveying plant 15 horse-power. In regular practice it is found that the consumption of coal is $3\frac{1}{2}$ lbs. per horse-power per hour. Power is transmitted by means of manilla rope driving, instead of belting, the particular grade of ropes employed being what are known as long-fibre transmission ropes. These ropes are, in the course of manufacture, “laid” in tallow. They are two inches

in diameter, and have the practical advantage of being free from liability to slip.

The equipment of the entire installation is on a scale of unexampled completeness, and the general principles upon which these Port Arthur elevators are constructed are unsurpassed, if they are equalled, by any others in the world. As I went over the premises they impressed me as having been built apparently to last for all time. They have their foundations on solid rock, and their rigidity is such that no jar is perceptible, even when working at full capacity. It was something of a nerve-straining experience to ascend to the top of these elevators, but the effort was well worth the making, for not only did it afford a comprehensive prospect of landscape and lakescape, but there was in the immediate downlook from the strange eminence an element which was veritably appalling.

Great as are the storage and handling capacities of these elevators, these would be of little practical service were they not supplemented by abundant dock and wharf accommodation. At Port Arthur the size and equipment of the docks and wharves are amongst the most noteworthy features of the entire place. Immediately abutting upon the elevator buildings are long ranges of wharves, at which vessels of 10,000 tons—equivalent to a grain cargo capacity of 300,000 bushels—can directly load up. While I was there I saw an American vessel of that size taking in a cargo of grain for the city of Buffalo. A large trade is done with Quebec and other Canadian ports, but I need hardly add that the direct shipping trade with Europe is becoming increasingly important, and more particularly with the Mersey and Belgian seaports.

But of the dock facilities provided I shall have more to say in my next chapter, which will deal with other important phases of industrial activity at Port Arthur. From what I have said so far regarding this coming centre of Canadian trade it will be understood that its potentialities as a distributing headquarters for the great wheat-growing territories of the Canadian North-West are beyond dispute, and the foresight, enterprise and success with which the Canadian Northern Railway Company has tackled the problems and the difficulties which have confronted them find nowhere a fuller justification or exemplification than at Port Arthur as the visitor finds it to-day.

CONCLUSIONS :

That Port Arthur is one of the most wonderful industrial creations of recent years in Canada.

That the future of the City and Port is assured, and will be of the greatest importance in the further development of the natural resources of the Canadian North-West.

CONCLUSIONS—(*continued*):

That the Grain Elevators of Port Arthur are unquestionably the largest, most noteworthy, and most completely equipped in the world.

That the mechanical equipment of the Docks at Port Arthur is unique in Canada, and represents the most perfect plant of its kind on the American Continent.

CHAPTER VIII.

PORT ARTHUR AS A COAL-SHIPPING AND IRON - MAKING CENTRE: A FURTHER DEVELOPMENT OF CANADIAN NORTH- ERN RAILWAY ENTERPRISE.

THE MINERAL RESOURCES OF THE PORT ARTHUR DISTRICT—A
REMARKABLE COAL-HANDLING PLANT.—THE CANADIAN
NORTHERN COAL AND ORE DOCK COMPANY.—PLANT FOR
HANDLING ANTHRACITE.—THE ATIKOKEN IRON COMPANY,
LIMITED, AND ITS OPERATIONS.—THE FUTURE OF PORT
ARTHUR.

IN my last chapter on Port Arthur I confined myself more particularly to the grain elevators thereat, which are its especial pride and glory, and which its citizens never tire of reminding the stranger who may be within its gates are the largest and finest in the world. But the industrial glory of Port Arthur is by no means dependent upon its grain elevators, or even upon the great agricultural industry of which it has within the past few years become a leading centre, so far, at least, as the storage, treatment and distribution of the grain are concerned. Quite as naturally, in a geographical sense, Port Arthur has become a centre in connection with the metallurgical and mineral industries of Ontario, and in this particular its future promises to be of the greatest significance to the material development of the Canadian North-West.

Here let me premise what I have to say with regard to Port Arthur in mineral and metallurgical respects by reminding the reader that the immediate district in which the city is situated is one of the richest in mineral wealth of the entire Province of Ontario. The land area of the province, as a whole, may be computed at about 220,000 square miles, or equivalent to about twice the area of either Great Britain or Italy. Throughout this entire area there are varied and extensive deposits of the economic minerals, including iron, copper, lead, nickel, gold, silver, zinc, cobalt, asbestos, mica, salt, petroleum, clay and structural minerals—as I explain fully in the “Minerals and Mining” section of this volume—and the development of many mineral properties has proceeded vigorously, with, in

numerous cases, highly remunerative and promising results. But the full development of the immense mineral resources of Ontario, and of Western Ontario in particular, remains with the future—and time and capital together work wonders in Canada. It is in connection with this great future that the importance of Port Arthur as a producing and distributing centre will be demonstrated.

The immediate neighbourhood of Port Arthur abounds in the most varied mineral wealth. More than thirty years ago the district was famous, as I remark elsewhere, for the silver-mining operations conducted at Silver Islet mine. A vein was found to outcrop on a small island, about a mile from the mainland, and the ore attained quite a world-wide celebrity for its richness. Ore of a value of, I believe, some 3,250,000 dollars was extracted from this mine down to 1884, when, owing to engineering difficulties connected with the water, it was closed. Westwards the Silver Mountain and Beaver mines produced much rich ore, and later silver-mining operations have been conducted in the Thunder Bay district, to the west of Port Arthur.

Deposits of gold, zinc, lead, copper and iron are amongst the more important of the other mineral resources of the neighbourhood of Port Arthur, and when their systematic development takes place the railway and shipping facilities which the city affords will be leading factors in promoting their industrial significance. I understand that arrangements have been made with important American interests to ship a minimum of 1,000 tons of ore a day from the opening of navigation to the great American steel ports on Lake Erie. From the territory immediately south of the International Frontier the great American steel industries have for twenty years past drawn the major part of their iron-ore supplies, and the Canadian Northern Railway passes through the centre of the Canadian section of the same deposit, which has not hitherto been developed, firstly because the American side afforded, until a year or two ago, all the ore required, and secondly because the Canadian Pacific Railway passes too far north.

The American ore is handled by those two marvellous little railways—the Duluth, Missabe and Northern (49 miles), and the Duluth and Iron Range (117 miles), which for many years held the record of traffic per mile over all other railways in the world. Meanwhile, Port Arthur has, through the enterprise of the Canadian Northern Railway, been anticipating events with surprising thoroughness, and, with an intelligent appreciation of the great things that are to come to this part of the Lake shore, it has during the past very few years, as I indicated in my last chapter, emerged from the obscurity of an inconsiderable village to a position of daily increasing railway shipping and industrial importance.

The general disposition of the railway works and docks at Port Arthur has been based on a thoroughly well-conceived plan. The docks and wharfage are not only abundantly extensive, but they are equipped with mechanical resources which leave little to be desired. These are especially noteworthy as regards the means available for handling coal and ore. The coal is brought by lake from American ports to Port Arthur for distribution westwards, for which purpose this terminal point of the Canadian Northern Railway presents itself as a natural base. The demand for anthracite coal, which is used for domestic purposes in the Canadian North-West, is continuous and increasing, and, indeed, the West looks to the East for supplies of all sorts of material, and must to a great extent and almost of necessity use Port Arthur as a distributing base. As population and industrial activity increase, as increase they must, the shipping and railway facilities which Port Arthur offers must correspondingly come more and more into requisition.

One of the principal undertakings connected with the handling and transport of material at Port Arthur is that of the Canadian Northern Coal and Ore Dock Company—one of the several subsidiary companies of the Canadian Northern Railway. The capacity for dealing with coal cargoes which the company's docks afford is equivalent to the unloading of 9,000 tons of coal every twenty-four hours. There is, moreover, storage capacity available for 250,000 tons of coal, and when the storage accommodation is completed this capacity will be increased to 1,000,000 tons. The plant for handling the coal is known as the Mead-Morrison, and, as installed at these docks, presents itself as the most economical and rapid system of handling soft coal in large quantities which has yet been invented. Competent authorities pronounce this plant to be the most complete on the American continent.

An important and interesting feature of the Mead-Morrison plant is the system of pockets adopted, or rather, I should perhaps say, the method of locating the pockets, and, by the aid of an electric coal-car trimmer, the number of freight cars which can be loaded is only limited by the length of the siding. As it is, as many as thirty cars have been loaded within the space of an hour and a half, and, as each car accommodates approximately 30 tons of coal, some idea can be obtained of the rapidity with which coal-loading operations can be effected at these docks.

So far I have been referring mainly to the manipulation of soft coal. There is also a distinct plant for dealing with hard coal, such as anthracite. Its distinguishing feature is an ingeniously devised method by means of which the coal is screened and graded automatically, being binned without separate handling

or manual labour accordingly as its size and grade suit it for the "furnace," "egg," "stove," "pea" or "screenings" bins. The entire mechanical equipment is based on the necessity for the rapid, economical and efficient handling of coal in the largest commercial quantities.

Another extensive dock has been specially built and equipped for handling iron-ore on a large scale. It is the property of the Atikoken Iron Company, Limited, which is one more of the Canadian Northern Railway Company's subsidiary concerns. The great increase which has taken place in the production of iron-ore from the Atikoken Company's mines has necessitated also the construction here of smelting works, and the building of the Canadian Northern Railway line from Port Arthur to Winnipeg brought the Atikoken Company's iron range within four miles of the works.

The function of these works is to produce pig-iron from the Atikoken ores on the spot, instead of shipping them to American ports; and the great American steel interests have acquired and are mining a great tract about 35 miles from Port Arthur on the Canadian Northern Railway. The supply of ore, too, is practically unlimited. At the time of my visit there was enough ore in sight and on the dumps to keep the blast furnaces at Port Arthur in full operation for three months, and the furnaces were expected to be in operation by April this year. Moreover, the ore from the Atikoken range is of such high metalliferous grade that there will be no difficulty experienced, it is expected, in manufacturing No. 1 Bessemer pig.

All indications seem to point conclusively to the foundations having been laid of an immense and progressive iron industry, which will contribute in the most material way to the general prosperity of the city and district. It will be a great advantage to have the local supplies of pig-iron manufactured on the spot, whither hitherto it had all to be imported. When I was at Port Arthur I heard that one of the largest manufacturers of threshing and milling machinery in the United States was about to start a branch there, because of the cheapness with which the necessary raw material could be obtained, and the admirable facilities for the reception and despatch of goods which the railway and shipping arrangements made available.

But the grain elevators, the splendid dock accommodation, the ever-increasing railway facilities, the up-to-date coal and ore handling plants and the new ironworks do not suffice to exhaust the industrial resources and possibilities of Port Arthur. Already there are woollen mills and wood-working plants, oatmeal mills and other factories established, and making promising headway; substantial stores and business houses show every symptom of

trading prosperity ; and there are wanting few indications that the foundations of a rapidly-increasing industrial and commercial community at a point of singular geographical vantage on the north-western shore of Lake Superior have been securely laid.

From information which reached me from the other side after my return to England it seems that it is not unlikely the mining history of the Silver Mountain region, to which I have already referred, will repeat itself. Mr. Hanson, who has been in the district, on his return to Port Arthur had with him samples of ore taken from the mine—of which, by the way, he is manager—some of them being nuggets of evidently nearly pure silver, and one of them weighing 100 lbs. This represents, I hear, the richest strike ever made in the district. The vein was lost, but it has apparently been struck again, and the ore samples are reported to be richer in metal than any hitherto met with in the Silver Mountain region. They are said to be regarded as a revelation by the oldest local miners, and some of the ore assayed as much as 19,000 ozs. to the ton !

If all this be so, even with a considerable discount allowed off, it only confirms the impressions I gathered from what I heard and saw when I was in Western Ontario. It is impossible to consider the resources of the region on the spot or the possibilities of Port Arthur as an entity in their development without coming to the conclusion that only a combination of time—and no long time either—enterprise, of which there is a native abundance, and the judicious employment of British and Canadian capital is needed to render Port Arthur a power in shaping the industrial future of Western Canada.

CONCLUSIONS :

That the development of Port Arthur as the Lake Terminal of the Canadian Northern Railway is of the greatest prospective significance to that system.

That the plants installed at Port Arthur for the handling of hard and soft coal represent the last word in mechanical equipments of their kind.

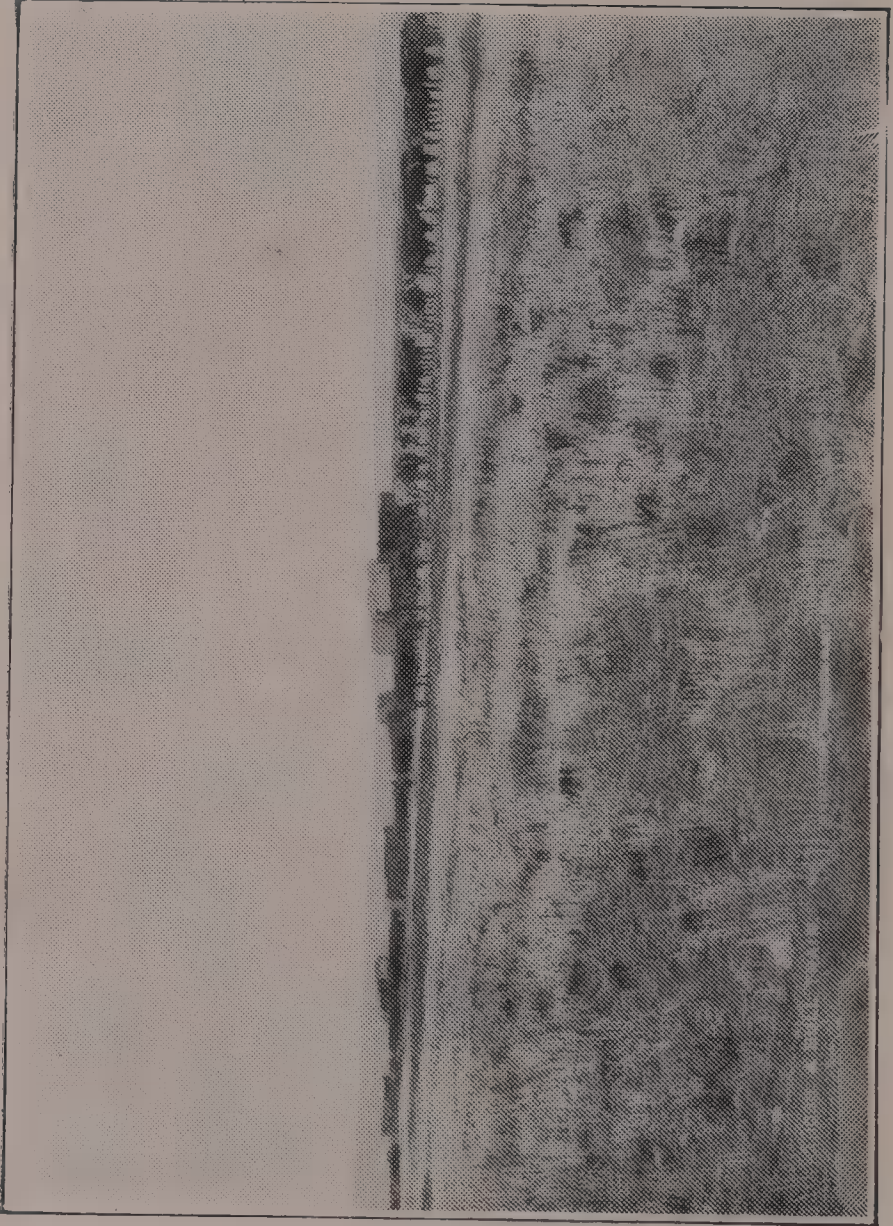
That the Atikoken Iron Company, Limited, has every promise of a brilliant industrial future.

That history is repeating itself, and the once famous mining camp at Silver Mountain may yet prove one of the richest in the world.

That time, enterprise and the judicious employment of capital will enable Port Arthur to become one of the great industrial centres of the Dominion.

SECTION III.

AGRICULTURE IN CANADA.



A PRAIRIE SCENE IN THE WEST.

CHAPTER I.

THE GRANARY OF THE EMPIRE.

AGRICULTURE THE GREATEST OF CANADIAN RESOURCES.—THE GREAT GRAIN BELT OF WESTERN CANADA.—BOUNDLESS OPTIMISM AND OPPORTUNITIES.—THROUGH THE GREAT GRAIN BELT IN A PRIVATE RAILWAY CAR.—THE REMARKABLY FERTILE SOIL OF THE WEST.—THE ENTERPRISE OF THE RAILWAYS IN DEVELOPING THE NEW COUNTRY.—THE PROSPECTS FOR SETTLERS IN THE WEST HAVE NOT BEEN EXAGGERATED.

WHEN one comes to examine in detail the enormous natural resources of Canada, and to consider their vast extent and remarkable variety, even for a country whose area covers half a great continent, and is territorially veritably an empire in itself, it seems almost invidious, where all are so prolific, and so full of industrial possibility, to particularise one source of wealth which more than another is destined to make for the greatness of Canada's future. But, after all, one cannot close one's eyes to the overwhelming magnitude of the agricultural resources of the Dominion, and to the unquestionable fact that Agriculture, in its several industrial ramifications, overtops all other present and prospective Canadian interests in extent and commercial significance.

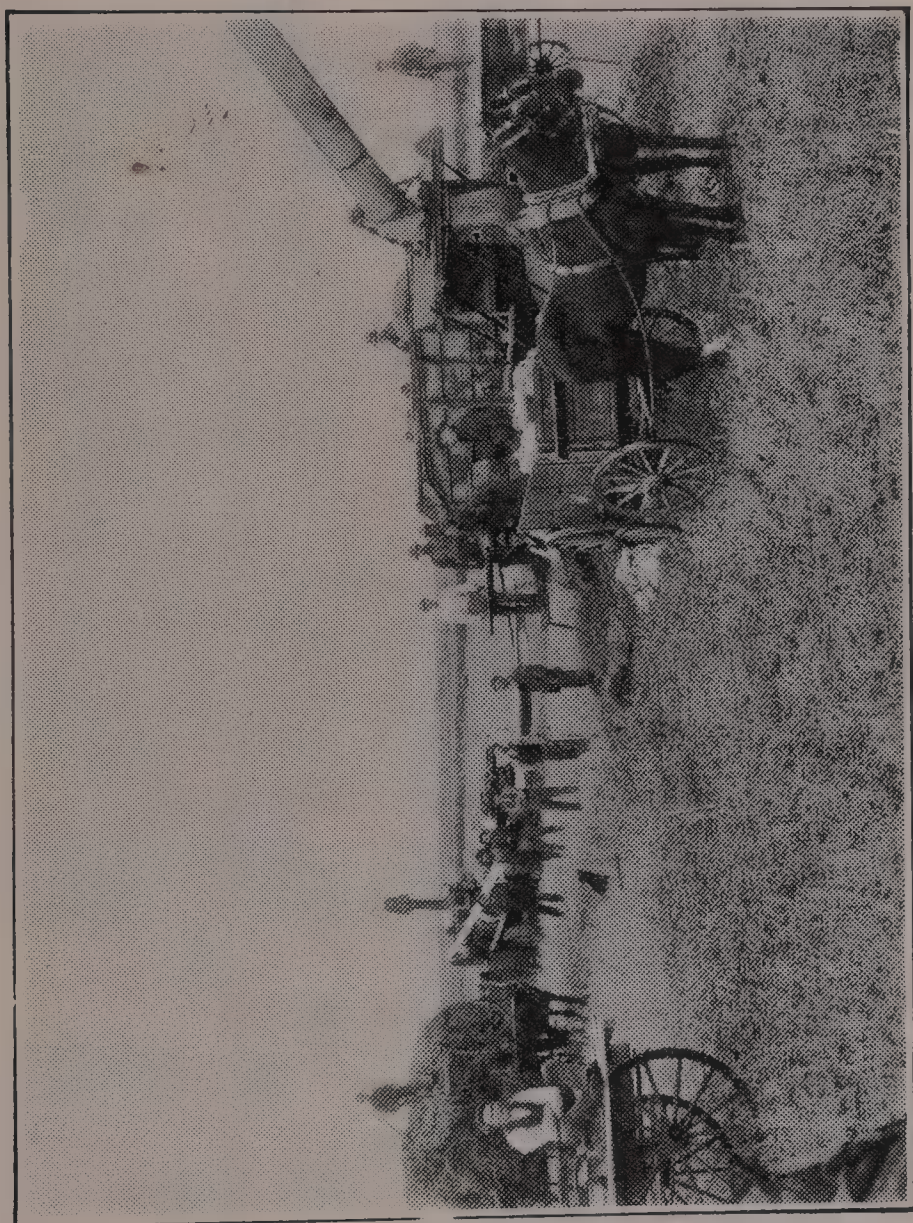
I shall be able to show in the chapters which follow that the forest wealth of the Dominion is ample to meet the requirements of the lumber and timber-consuming world for an indefinite period, even if exploited to its fullest extent; the forests, again, will supply pulp-wood, as raw material for paper-making, for, at the lowest computation, hundreds of years to come. The wealth of Canada in economic minerals, I shall be able to demonstrate, is prodigious, and in many respects practically inexhaustible. The iron and steel manufacturing and engineering interests in the Dominion are making such rapid progress that before many years are over they promise to have assumed a position of first-class importance in the metallurgical and engineering world. The fisheries of Canada are hardly less prolific, as a later chapter will serve to indicate; and as a fruit-grower the Dominion is only yet in the infancy of what promises to be a vigorous prosperity.

Much more I might add to this list, but, above and beyond it, Agriculture transcends in magnitude and importance all the other industrial and commercial interests of Canada, great and increasingly important as these are. Whatever affects the Canadian farmer advantageously or adversely immediately reacts in corresponding measure upon all the other branches of Canadian industry which I have enumerated, and many more besides. It is, in short, Agriculture which governs in the most complete sense the material prosperity of the Dominion as a whole. Under these circumstances I propose, in dealing with the industrial resources of Canada, to consider Agriculture in its several branches first but before proceeding into general detail I will record the impressions which my visit to the Great Grain Belt of Western Canada created upon my mind.

Far and away the most interesting part of my visit to Canada was the period I spent in the Golden Grain Belt of the West. For weeks I had heard again and again during my travels in Eastern Canada such expressions as "Only wait until you reach the Nor'-West; then you will see what development and progress really are. We are reckoned quite slow here." What wonder, then, if my imagination had run riot? What wonder if I had pictured miles and miles of level prairie covered with waving crops, countless snug-built homesteads, prosperous towns fast growing into great cities of the future, and railway-lines groaning under the number of wagons bearing the harvest of the West to the millions of the East?

I left Winnipeg by the Canadian Northern Railway, therefore, prepared for wonders. When one's hopes have been raised so high, disappointment often comes, but I am bound to say this was not my experience. Every mile I traversed seemed to more than justify all I had heard. A great portion of the land along the railway was under cultivation. Busy towns were springing up every few miles. Substantial farmhouses were here and there to be seen in a state of completion, while others were being erected with feverish haste. The traffic on the railway was unquestionably very heavy in both directions. Everywhere I stopped there were scenes of tremendous activity, which only the hope and enthusiasm of men building up prosperity for themselves and their children could have brought into existence.

And the wonderful air of the West—soft, yet not enervating! It seemed to stimulate one's energies, and infuse new life with every breath. A people living in that atmosphere surely should be capable of great things. From the picturesque point of view, the country at the time of my visit did not appear to its greatest advantage. The wheat had been cut, and there were consequently great stretches of stubble-covered fields, where there had only a



A THRESHING SCENE IN THE WEST.

short time before been oceans of waving grain. The only relief to the landscape were the great stacks dotted here and there, the farmhouses, and an occasional grain elevator. In the distance huge threshing machines were viciously attacking the stacks of wheat, throwing up what looked like clouds of steam, but were in reality whirling streams of refuse straw. In some instances land had been turned for the winter crops, and here it was unmistakable how rich and luscious the earth really was—rich black loam, it seemed ready to burst into life. Was it strange that one's thoughts should turn to the poor, half-starved acres of Old England, where the farmers were laboriously wresting from an exhausted soil a precarious existence?

"If they could only see this," I thought, "surely they would sell up every stick, and come where the earth seems to be crying for cultivation." I am not an agriculturist, but it appeared to me, on the most cursory examination, that for a generation this land would yield bountiful crops without the aid of any fertilisers, whereas in the used-up land of the Old World only by the aid of artificial means can the earth be compelled to yield up its fruits. All the rich loam of the West required was just scratching: a few handfuls of seed thrown in, and Nature did the rest—and did it generously and bounteously, too.

So much for the land I saw, either in cultivation or prepared for cultivation, and I naturally wondered whether the soil of the great stretches of uncleared country were equally rich. I was assured again and again that it was—that the railway by no means passed through the best country, that in its construction a more or less straight line had been drawn from Winnipeg to Edmonton, and upon this route the rail had been laid, regardless of whether the land was richer a mile or so on either side. But so recently has the line been built that not once, but a hundred times, I was able to judge of the quality of the soil by the fresh-cut embankments.

And this is what I saw. On the top there would be a coating of verdure; underneath six to twelve inches of black earth, and below this a much lighter clay soil. The land was only partially covered, and was capable of easy and inexpensive clearance. There were quite a number of fairly good-sized ponds on either side of the rail. Needless to say, these were covered in the early morning with wild duck. In some instances it would have been possible to have shot the birds from the train. But I was not content to see the country from the railway carriage windows. Thanks to the courtesy of the Canadian Northern Railway, I had a private car placed at my disposal. I had this switched off again and again, and rode or drove ten or fifteen miles into the country, and what I saw fully confirmed all I have written above.

Naturally, lands along the railway have been acquired by farmers and to others a greater extent than in the hinterland. Repeatedly I gazed on wide stretches of practically uninhabited country, awaiting the hand of the cultivator. The feeling that I had was : here is room for a million people to thrive, to prosper, to lead the most healthy life in the world.

It is, perhaps, but fitting that I should now indicate how wide a stretch of country I covered, and how complete were my opportunities for collecting thoroughly reliable data. From Winnipeg I went by the Canadian Northern to Edmonton, staying at various intermediate stations on my way. From Edmonton I went across country to the Canadian Pacific Station at Calgary. From Calgary I journeyed to the Rocky Mountains, and on my return I went by an entirely fresh route from Calgary by the



THE AUTHOR'S PRIVATE CAR ON THE CANADIAN NORTHERN RAILWAY.
Provided by the courtesy of the Directors.

Canadian Pacific Railway to Winnipeg. During the greater part of my journey I was accompanied by a guide who thoroughly knew the country traversed. In various towns I was put into immediate touch with the leading people. I heard from them first-hand what had been done, what was being done, and of their hopes for the future.

Boundless optimism reigned everywhere. Again and again I heard such descriptions as : " This town four months ago consisted of two or three log-houses. Now, you see, we have a hundred-odd houses, we have got banks, hotels, the telephone, and many of the luxuries of the most advanced civilisation of the East." Or, again, as one stood amongst a crowd of

eager settlers: "This is going to be the town of the West. Winnipeg is too far East; nothing can prevent us going ahead; this is bound to be a junction; the land about here is richer than anywhere; stay here a week, and then you will not have seen all we have got to show you."

I looked round and saw a few score of wooden houses, with the inevitable hotel close by the station, and thought of many cities in the Western States of America which had started in the same way, and had become the great centres they are to-day by the boundless energy and unconquerable courage and indomitable optimism of their early founders. And where one in the first instance was perhaps inclined to smile, the conclusion was that, situated as those towns are in the most wonderful grain-producing country in the world, there was in reality nothing to prevent them exceeding in greatness even the wildest dreams of the pioneers who were so bravely doing the rough work and staking their all upon the future.

To a settler who trekked West over the bare prairie as far as Edmonton three years ago, it must be nothing short of a revelation on returning east by the Canadian Northern Railway to-day—passing as he must through settled districts, with homesteads showing up on either side of the line, each with its farmhouse and out-buildings, and one and all indicating prosperity and comfort. At very short distances apart he would pass through thriving little towns, the sites of which but a few months ago were open fields, and which to-day have their large general stores, hotel, &c., and possess every facility for the well-being of the settler.

It has been and is an unfortunate fact that our people at home cannot seem to realise the wonderful resources and possibilities of the new land, and I fancy in many ways even Canadians themselves do not fully appreciate the value of their marvellous country. Americans are not, however, so slow to see those things, and are pouring in over the border in ever-increasing numbers. While the railway extensions in the Far West are being eagerly followed up by newcomers, settlers too are rapidly filling in the nearer districts. Lands on either side of the Canadian Northern Railway, from Glenella to Dauphin, then west on the Trunk line to Wadena and Quill Lake, and north on the Prince Albert branch through Swan River and the Carrot River Valley, are being rapidly disposed of, which is scarcely to be wondered at when one considers the wonderful prosperity and success abounding on all sides. The crops in those parts have been in the past some of the heaviest harvested in the North-West.

Passing through the Dauphin country one sees some of the most fertile parts of Manitoba, which has recently gone ahead so rapidly and has produced such record crops that land here has

risen greatly in price. The Great Lakes that lie to the east make the climate milder than it is to the south. It is not generally known that very successful experiments have been made in this region, as well as in Alberta, in the cultivation of winter wheat.

To the west, along the main line of the Canadian Northern Railway, lie the famous Quill Lake Plains, which were known to sportsmen and land surveyors long before settlement began, the lakes being the resort of innumerable water fowl, the streams abounding with fish, and in the season prairie chicken, wild turkeys, geese, and larger game, too—the antelope amongst the rest—may be seen in great numbers. It is a district of deep, rich, black surface-soil, with clay subsoil, which in the near future will be yielding millions of bushels of wheat of the finest grades. The climate, too, is milder here than in the south, the elevation not being so great.

Away to the north, along the Prince Albert branch of the Canadian Northern Railway, lies the Carrot River Valley—the river being a tributary of the North Saskatchewan—another district famed for its exceptional richness, so rich, indeed, that years before the railway came early settlers hauled their grain sixty miles to market, and prospered. The water supply is good, and poplar trees are more plentiful than in many other parts, which fact makes the district very much sought after by those who have an eye for pretty surroundings as well as for the mighty dollar.

From Quill Lake to Humbolt and away west along the main line of the Canadian Northern Railway one sees a succession of brand-new, yet busy little towns: Aberdeen, Langham, Radisson, North Battleford—destined to become one of the most important towns in the North-West—Lloydminster, the centre of the famous Britannia Colony, Vermillion, and, finally, Edmonton. And these are only the principal towns, for villages are dotted all along the line at short distances apart—in fact, at almost every station.

What has been said of Dauphin, Quill Lake and Carrot River may be well applied to the entire country through to Edmonton. Very careful reports by experts have been made of the land between Winnipeg and Edmonton, which state that from 80 to 90 per cent. of this great stretch of country will in the near future be producing wheat. The calculation allowed 20 miles on either side of the Canadian Northern Railway, embracing 20,480,000 acres. Supposing that 75 per cent. will grow wheat at 15 bushels to the acre, no less than 300,000,000 bushels of wheat would be produced, or more than enough to supply the home market. It is almost impossible to depict to people at home this magnificent country of the West. One has to see for oneself to really comprehend. To have watched the growth of the last three years is

wonderful enough, but it is still going on. The rapid railway development all over the country will enable settlers to go into their new land of promise with very few of the hardships endured by the early pioneers.

The rapidity with which the lands are being disposed of can be easily seen in the success of every Canadian land company, the property purchased season by season rapidly advancing in value. It is tolerably certain that from now onwards the increase of land values in Western Canada from year to year will of itself represent a magnificent income on the original investment. There are millions of acres yet to be had, it is true, but they are being taken up so rapidly by the thousands of settlers pouring in that within a very short time it will become increasingly difficult to procure as desirable a homestead as was the case comparatively recently.

Railway development is another thing that commands attention. Canada does not wait for settlers before building, the idea being to create settlement by building new lines. Thus we have the Grand Trunk Pacific, Canadian Northern and Great Northern all building as fast as possible their trunk lines, while the Canadian Pacific Railway is not losing time in completing its system, pushing ahead the Kirkella and other branches. The influence of railway development can best be seen in the transformation wrought by the Canadian Northern line from Winnipeg to Edmonton. Had it not been for that railway, the development of the country, with its wonderful possibilities, might have been delayed for years.

As the result of my trip through the Great Grain Belt and the observations and investigations I was able to make on the spot, I was enabled to arrive at the following

CONCLUSIONS :

That the boundless optimism which reigns in the West is justified by what has been done in the past and is being done at the present time.

That this year will witness the greatest rush of immigration in the history of the American Continent.

That every English farmer who is not doing well in this country should make for the West.

That there is room for all now, but there will not be in a year or two.

That the Canadian Northern Railway, in opening up this wonderful wheat-producing country, has done great work not only for Canada, but for the Empire.

That some of the towns in the Provinces of Alberta and Saskatchewan are destined to be amongst the great cities of the future.

CHAPTER II.

GRAIN-GROWING AND ROOT CROP CULTIVATION.

CANADA, THE EMPIRE'S BREAD-BASKET OF THE FUTURE.—
FARMING IN THE MARITIME PROVINCES.—AGRICULTURE IN
QUEBEC AND ONTARIO.—WHEAT GROWING IN MANITOBA.—
AGRICULTURAL PROSPECTS IN THE NORTH-WEST.—THE
RUSH OF IMMIGRATION.—ALBERTA WINTER WHEAT.—THE
MAGNIFICENT HARVEST RESULTS OF THE NORTH-WEST.

IN investigating the agricultural resources and possibilities of Canada, one has to keep steadily in view the fact that, notwithstanding the often much-exaggerated severities of the Canadian winter, the soil and climate of most of the provinces of the Dominion seem to have been specially designed by Nature for crop-growing and stock-raising purposes. The virgin soil, as I mentioned before, has in a sense merely to be scratched to provide the husbandman with its fulness, while the rich agricultural land that one traverses as one travels over the great Canadian railways will yield successions of heavy crops for years without requiring the stimulus of an ounce of artificial fertiliser. Such magnificent crops are raised that one is not surprised at the boundless optimism of the vigorous Colonists when they come to speak of the prolific agricultural resources of their country.

Canada has, indeed, been equally well described as the "Granary of the Empire" and as the "Bread-basket of the World," for not only is the time near at hand when the Dominion will be able, if required, to supply the United Kingdom with the wherewithal from which to provide its breadstuffs and to cover all deficiencies that may arise in supplies from other quarters, but in years to come it will look forward to being able, if it were called upon to do so, to practically supply the whole Empire, or, for that matter, even half the civilised world, with bread.

Our own country requires an annual supply of about two

hundred million bushels of wheat to meet her bread deficiency, and against that there are in the Canadian North-West more than two hundred million acres of land that will produce wheat. It has been authoritatively estimated that if one-fourth of that huge area be in course of time devoted to wheat-growing, and the average production of Manitoba—19·4 bushels per acre—be maintained, there is a grain supply available from this one-fourth of the two hundred million acres capable of producing wheat in the North-West sufficient to supply England's deficiency more than three times over.

Then it must be remembered that it is not only the North-West which raises grain crops, although the Grain Belt of the West is the most prolific wheat-producing area in the Dominion, but in all the provinces grain-growing is a standard industry of the first importance. Nearly fifty per cent. of the entire population of the Dominion earn their living more or less directly from the products of their Mother Earth. Indeed, in some of the provinces a much higher percentage of the population than fifty per cent. is solely engaged in farming and allied pursuits. Moreover it is Agriculture in its various ramifications to which Canada looks to-day for the great influx of new blood from this and other countries which is to help her on her way, developing her resources and strengthening her vitality as one of the great self-governing segments of which the British Empire is composed.

It may be well that in my brief survey of the present position and possibilities of agricultural industry in Canada I should commence with the older provinces first, and primarily with the Maritime Provinces—Nova Scotia, New Brunswick and Prince Edward Island—these being the easternmost divisions of the Dominion. I can then, by natural gradations, proceed Westwards, as I did during my visit, until the great grain-growing belts in Manitoba and the North-West are reached. I shall deal with my subject briefly province by province, and confine myself in this chapter mainly to the crop-farming resources of the Dominion, leaving such cognate subjects as stock-raising, ranching, horse-breeding, dairy-farming and fruit-growing, all of which have become flourishing branches of agricultural industry in Canada, for subsequent treatment.

First, then, as to Nova Scotia. My information goes to show that this province, which possesses large areas of loamy and fertile soil, to-day continues to produce heavy crops of hay, oats and wheat, with barley, rye, buckwheat and pease in smaller proportions. Excellent root crops are also raised, the chief of these being turnips and potatoes.

In New Brunswick, as in Nova Scotia, there are large areas of rich and fertile land, yielding, when carefully cultivated,

heavy grain crops. Altogether rather more than a million acres are, I believe, under cultivation in this province, and of these about one-half is in hay. From the other half the chief crop raised is oats, buckwheat taking second place, while wheat, barley and potatoes have smaller areas devoted to their cultivation. Mixed farming is extensively carried on, and the root crops are as bountiful as the pastures are excellent.

Although Prince Edward Island is the smallest of the provinces of Canada, having an area of little more than 2,000 square miles, of which some five or six hundred are still under forest and woodland, nevertheless I was surprised to learn how extensively successful farming operations were carried on in the island. About 80 per cent. of the population is directly engaged in Agriculture, and the rich, loamy soil produces excellent crops of hay, which formerly was largely exported, oats, potatoes and turnips, and smaller proportions of wheat, buckwheat and barley. Of late years dairy-farming has received especial attention. Fruit-growing, too, is yearly gaining in favour.

Coming next to glance at the agricultural resources of Quebec and Ontario, I find that the former province embraces an area of 347,350 square miles, of which more than half is covered by forest growths. The mountain ridges and lofty uplands are diversified by fertile valleys, which are copiously watered by lakes and rivers, and much of the country, having a rich and loamy soil, is well adapted for farming operations, which are carried on in some districts on a large scale. About half the population of the province, which aggregates something like 1,700,000, is engaged in agricultural pursuits, although the conditions have latterly somewhat altered owing to the increasing competition, so far as grain crops are concerned, of the West.

The principal cereal crops cultivated in Quebec are wheat and oats, and, to a smaller extent, buckwheat and pease, with barley, maize and rye in still smaller proportions. Great store, however, is set upon the hay crop, which is one of the principal raised in the province, and a large proportion of this, I am told, is exported. Flax is also widely cultivated, both for its seed and its fibre, and tobacco is a crop which is coming well to the front in Quebec—indeed, a large proportion of the tobacco grown in the Dominion emanates from this province. Sugar-beets are successfully cultivated in most parts of the province, and mangels, turnips and potatoes are amongst the other root crops which flourish abundantly in its soil. As may be judged from the character of the hay crop, the pasturage generally is excellent, and stock-raising is becoming an industry of increasing importance. The dairy industry, too, is making rapid progress, as I shall show in another chapter.

The province of Ontario differs widely in many agricultural respects from Quebec. The province has a territory of 223,000 square miles, of which about one-half is in forest and woodland, and, while its climate is wonderfully varied, it is usually found that the extremes both of summer heat and winter cold are agreeably modified by the existence of large bodies of water. A large proportion of the land is of thoroughly good farming quality, although the soils differ much in character. At the present time Ontario has, I believe, considerably more than twelve million acres of land cleared, and of these about eleven millions are in pastures or field crops. The greatest proportion of the land in cultivation is farmed for hay and clover, considerably more than two million and a-half acres being located for these crops. I have not obtained the most recent official figures issued relating to the field crops of Ontario, but two or three years ago the hay and clover harvest yielded 4,632,317 tons, equivalent to 1·81 ton per acre.

The next most important crop in Ontario is oats, about two million and a-half acres being under cultivation for this grain. The figures before me show a yield of 78,334,490 bushels, averaging 32·5 bushels per acre. The land in winter wheat aggregates about a million acres, for which my figures show a yield of 16,017,029 bushels, equivalent to 17·4 bushels per acre, which, however, is rather under the average for the past twenty-five years, placed, I understand, at 20 bushels per acre. Other important cereal crops are barley, spring wheat, pease, corn (for husking in ear, and also cut green for soil and fodder purposes), and, to a much smaller extent, buckwheat and beans. Potatoes and turnips are also freely cultivated, and carrots are grown in considerable quantities. Red clover is largely grown for seed, and rape, flax, tobacco and hops are raised in various parts of the province. Stock-farming is a most important industry, and, with poultry and dairy-farming—mixed farming, in short—is counted one of the most profitable and successful branches of Agriculture in the province, having in various districts to a large extent replaced crop-farming.

These remarks apply more particularly to what may be described as Old Ontario. Further West, in what is known as New Ontario, comprising the Rainy River, Thunder Bay, and contiguous districts, the conditions are in some respects rather different, the country being newer, less generally settled, and with less of the land broken or cleared than is the case in the older parts of the province. New Ontario, however, is a country full of the most abundant promise, whether it be considered from an agricultural, a mining, or an industrial point of view. Of this fact I shall be in a position in subsequent chapters to give

some specific indications. In the Rainy River district the traveller passes through a fertile belt, computed to contain some 600,000 acres of excellent agricultural land, deemed capable of raising all the cereal and garden crops which flourish farther east, with the added advantage of increasing markets in the neighbourhood for the produce of the soil. These Crown lands are available for settlement in 160-acre free lots, subject to conditions of residence, the cultivation of ten acres for every hundred located, and the erection of buildings.

In the north of this district, and directly on the line of the Canadian Pacific Railway, is the Wabigoon River country, which is being rapidly opened up by experienced farmers from Eastern Ontario. The land here can be acquired by actual settlers only at the nominal price of 50c. an acre, one-fourth of the whole being payable down and the balance by annual instalments. It is estimated that this country comprises approximately 2,000,000 acres of readily clearable agricultural land, especially adapted to mixed farming, stock-raising or dairy-farming. In the Thunder Bay district there is also plenty of good agricultural land available, but at the moment the minerals in which that region abounds command chief attention. Then, again, in the Algoma district, of which Sault Ste. Marie is the natural centre, there are what in any other country than Canada would be regarded as great areas of fertile agricultural land, adapted to crop-growing, dairy-farming and stock-raising. Away to the north, in the Temiskaming country, a vast area of land, with a rich alluvial soil, presents itself, and I heard that some 600,000 acres had been placed in the market at the price, so startling to British ears, of 50c. per acre !

If, however, the investigator of the Dominion's resources desires to see Canadian Agriculture in its highest development, and conducted on the most ambitious scale, he must hie him to the Western provinces, of which the first with which he makes acquaintance is Manitoba—the pioneer province of the West and the Red River Settlement of bygone years. Manitoba is situated practically in the centre of the Dominion, about equidistant from the Atlantic and Pacific seaboard. Although one of the smallest of the Canadian provinces, it is yet as large as England, Scotland and Ireland combined, and its territory of 73,956 square miles contains as many as 27,000,000 acres of arable land, of which only about one-sixth has as yet come under the metamorphosing influence of the plough. Nevertheless, Manitoba presents itself to-day as a settled community, with a population which, at the census of 1901, amounting to 255,221 souls, must since have been increased to something not far short of half-a-million, the bulk of the population being immigrants from the United

Kingdom, the United States and the Eastern provinces of Canada.

According to the most recent official figures, there were, I find, about 4,200,000 acres of land in Manitoba under the plough in 1905, and the average yield of wheat for that year and the year previous was about 20 bushels per acre, fetching a market price of 65c. and 85c. respectively. It has been estimated that the outlay for seed, harvesting and marketing the wheat may be placed at six dollars per acre, and, if this be so, there is a balance at the price quoted of from seven to eleven dollars of profit to the farmer. And it must always be remembered that, to begin with, the original cost of the new land to the settler ranges from only seven dollars to twenty dollars per acre. In the southern portion of the province the available land is generally open prairie, but the northern half of the province is mostly forest and wood land, necessarily requiring clearing before it can be brought under the influence of the plough.

In order to give some idea of the existing crop resources of Manitoba, I quote the following figures from the official report of the Department of Agriculture for 1905 :—

| Product. | Total Yield. Bushels. | Acres in Crop. | Average Yield. |
|------------------|--------------------------|-------------------|-------------------|
| Wheat | 55,761,416 | 2,643,588 | 21·07 |
| Oats | 45,484,025 | 1,031,239 | 42·6 |
| Barley | 14,064,176 | 432,298 | 31·2 |
| Flax | 326,964 | 24,770 | 13·2 |
| Rye | 173,075 | 6,923 | 25·0 |
| Pease | 53,706 | 2,081 | 26·0 |
| Potatoes | 4,759,646 | 25,835 | 187·0 |
| Roots | 3,481,651 | 13,411 | 262·1 |

For mixed dairy-farming and stock-raising, as I shall have further occasion to emphasise, Manitoba has immense resources and opportunities, and a great future, I should say, is probable for the province in the matter of fruit-growing and vegetable culture. In the last-mentioned particular no province in the Dominion can excel Manitoba. Potatoes yield an abundant crop, the tubers being mostly of large size. Cabbage, cauliflower, asparagus, rhubarb and other vegetables can be cultivated to perfection, and the market-gardening industry, as a branch of agriculture, should attain important dimensions at no distant

date in the province. Moreover, Manitoba has in Winnipeg, its capital, with its population of 100,000 souls, one of the most remarkable examples of city-growth on the American Continent, and a great centre for handling and distributing its produce. The province, already one of the greatest wheat-growing countries of the world, is in this, as in other agricultural and industrial particulars, only as yet in its infancy, but it is the infancy of a territorial Hercules.

The remarkably propitious agricultural conditions which are characteristic of Manitoba may be said to be continued, with variations in detail, through the great North-Western Provinces of Saskatchewan and Alberta. Saskatchewan measures 400 miles from east to west, and 700 from north to south, containing an area of 229,229 square miles. While a large portion of the north is still unexplored, the south is pre-eminently a field for crop-growing and stock-raising, and the greatest grain area in the province, traversed by the Canadian Pacific Railway, stretches from the Qu'Appelle River to the United States boundary. Here we have another Manitoba—a district which is fast becoming one of the most prolific wheat-producing areas on the American Continent, and a country of endless agricultural possibilities. The soil contains all the elements which go to nourish the wheat and bring it rapidly from the seedling to the harvesting condition.

In this connection I am tempted to quote the words of Professor Thomas Shaw, a journalist and eminent lecturer and writer on agricultural subjects, who, after a trip through Western Canada, confirms much that I have stated in the preceding chapter. "The contemplation of this great country," he writes, "is bewildering, whether viewed from the standpoint of size or resources. In size it is an empire. Our party has been travelling over it as fast as the engine could carry us for the past sixteen days, and we have only seen a very limited portion of its entire area. Its resources are almost fabulous in the aggregate. . . . But beyond all question the agriculture of this country will be its greatest industry through all the centuries. The first foot of soil in the three Provinces of Manitoba, Saskatchewan and Alberta is its greatest heritage. It is worth more than all the mines in the mountains from Alaska to Mexico, and more than all the forests from the United States boundary to the Arctic Sea, vast as these are, and next in value to this heritage is the three feet of soil which lies underneath the first."

The Regina and Moose Jaw plains contain some of the finest wheat land in the world; yet it was land that only three or four years ago could be secured from the Canadian Pacific Railway at three dollars an acre, while it will now fetch anything up to, or even beyond, 20 dollars. The "buffalo grass" of the ranching

land forms a splendid basis for stock-raising, and the entire province promises before long to be a leading one in connection with the dairy-farming industry of the Dominion. Regina, the capital, Moose Jaw and other growing towns are fast becoming important distributing centres for the produce of the province.

Westward of the Saskatchewan provincial boundary the investigator enters another vast land of promise—Alberta—a land overflowing with the milk and honey of agricultural and industrial possibilities. Nowhere in Canada has Nature been more bounteous in her endowments, and probably not another equal area—roughly, 281,000 square miles, I believe—in the world will surpass it in the wealth and variety of its as yet practically untapped resources. The soil is phenomenally rich. Its black vegetable mould has produced its 100 bushels of oats without any special effort, while half that yield is a normal commonplace. Barley has gone 60 bushels to the acre, and the more discriminating wheat as much as 40. But the crop-growing importance of Alberta is yet in its earliest infancy; the live-stock industry, to which I shall refer more particularly in another chapter, is its present mainstay.

At this stage let me assure the agricultural reader at home, who has any thoughts of turning his eyes westward, that the best farming lands in Alberta are far from being all picked up—yet. As a matter of fact, I am not exaggerating when I say that there are millions of acres of virgin prairie land in the province every whit as good as those which have been already cultivated. These remarks, too, apply with equal force to Saskatchewan, and only in a slightly modified degree to Manitoba, in which province, as the figures I have already given serve to show, there are still many millions of acres of agricultural land waiting for the advent of the plough.

But—and this cannot be too strongly emphasised—an immense inrush of agricultural settlers is expected to take place in the immediate future—indeed, the invasion is great at present, and is steadily increasing month by month. It would be well for agriculturists in this country who contemplate emigration to the West not to unduly prolong their delay in starting, for, with the keen eye to business and the pick of the basket which is characteristic of them, our friends in the United States seem especially disposed to migrate thither, and, as I mentioned in the preceding chapter, take advantage of the great opportunities for successful farming which the magnificent virgin lands offer.

In this connection I might say, *en passant*, that the Canadian Pacific Railway Company issue an instructive pamphlet dealing with the question of Alberta winter wheat farming, the cultivation of which variety is contributing in so marked a degree to the rapid

development of that province, and I advise those on this side who think of going Westward to apply for a copy of this publication. The Canadian Northern Railway Company also publish a quantity of literature of the greatest possible value to the intending emigrant. Besides this, the Emigration Bureau at Charing Cross have an immense amount of official information, which the officials are only too pleased to place at the disposal of applicants.

This question of winter wheat is closely identified with the very making of Alberta as a great coming agricultural and industrial province. So recently as 1902 only 3,444 acres were sown with winter wheat. Yet this limited area yielded in 1903 no less than 82,420 bushels, which was equivalent to an average of 23·86 bushels per acre. Then, again, in 1903 some 8,300 acres were sown with winter wheat, and yielded, in 1904, 152,125 bushels, or an average of 18·33 bushels per acre. This somewhat diminished average should not be regarded as indicating that the land most recently sown is of inferior crop-raising capacity, but is attributable rather to the lack of experience shown by those responsible for growing the cereal as to the precise time for seeding, while in many cases it was known that the seed used was of an inferior character. On the other hand, official returns, as well as threshers' reports, record frequent yields of from 35 to 50 bushels per acre. In 1905 no less than 32,174 acres were under winter wheat, resulting in a crop of 689,019 bushels, or an average of 21·40 bushels per acre, while in 1906 there were 43,661 acres under the same cereal, yielding 907,421 bushels, or an average of 20·78 bushels per acre.

It seems from what I have been able to ascertain that, notwithstanding the slight variations in yield above indicated, which can be readily explained, agricultural opinion in Canada is pretty generally agreed that Alberta winter red wheat will soon be as well and favourably known in the market as the famous Manitoba No. 1 hard wheat. This Alberta red winter wheat is sown in August, and by the fall has reached a height of from 6 to 8 inches. It passes through the storm and stress of winter without injury in any form, and is ready for the reaper in the August following. This crop, too, has the advantage—an important consideration to the farmer—of not shelling when over-ripe.

It has been argued that as winter wheat, the cultivation of which has now passed the experimental stage, does not suit the requirements of the European market, it will injure the reputation of Canadian wheats if it be raised at the expense of other varieties. To this objection the Alberta agriculturist replies that, even if winter wheat did not bring him in the same price as spring wheat in the European market, the increased crop

available would allow him still, by its larger sale at a lower price, to reap as much profit. On the other hand, Alberta will look in the future to the Pacific Coast rather than the Atlantic for an outlet for the products of her harvests, and as the people of the Far East have now been in a large measure educated up to the food value of wheat, Japan and China, whither considerable quantities of flour are now exported from the North-West, will become increasingly large consumers of the winter wheat.

But the development of Alberta as a wheat-producer—and great are its potentialities in this particular—is in the hands of the future, for of the 84,000,000 bushels which represented the wheat crop of the Dominion in 1905, Alberta was responsible for only 2,300,000 bushels. Although complete and reliable crop returns for 1906 are not yet, at the moment of passing these pages for press, available to me, a bulletin issued in September last by the Department of Agriculture of Alberta tells of greater harvest results than the province has previously known. The crops are officially estimated to yield an increase in spring wheat of 44 per cent., in winter wheat 32 per cent., in oats 38 per cent., and in barley 24 per cent. Still, for the present, the dominating agricultural interests in Alberta are those connected with ranching and the raising of live-stock generally, with which I shall deal in later chapters.

In order to enable the reader to see at a glance the progress made by the three North-West provinces as grain producers, and to appreciate the extraordinary harvests which have been secured, I append the most recent available official figures, some of those for 1906 being, however, estimated totals. Figures relative to Alberta winter wheat, which I have already given as regards that province, are excluded from the following statement :

WHEAT HARVEST.

MANITOBA.

| Year. | Acreage. | Yield. Bushels. | Average. Bushels. |
|--------------|-----------|--------------------|----------------------|
| 1902 | 2,039,940 | 53,077,267 | 26.0 |
| 1903 | 2,442,873 | 40,116,878 | 16.42 |
| 1904 | 2,412,235 | 39,162,458 | 16.52 |
| 1905 | 2,643,588 | 55,761,410 | 21.07 |
| 1906 | 3,141,537 | 58,689,203 | 19.0 |

WHEAT HARVEST—*continued.*

SASKATCHEWAN.

| Year. | Acreage. | Yield. Bushels. | Average. Bushels. |
|--------------|-----------|--------------------|----------------------|
| 1902 | 580,860 | 13,110,330 | 22.57 |
| 1903 | 777,822 | 15,121,015 | 19.44 |
| 1904 | 910,359 | 15,944,730 | 17.51 |
| 1905 | 1,130,084 | 26,107,286 | 23.09 |
| 1906 | 1,336,869 | 29,296,278 | 22.0 |

ALBERTA.

| | | | |
|--------------|--------|-----------|-------|
| 1902 | 45,064 | 850,122 | 18.36 |
| 1903 | 59,951 | 1,118,180 | 18.65 |
| 1904 | 47,411 | 786,075 | 16.58 |
| 1905 | 75,353 | 1,617,505 | 21.46 |
| 1906 | 97,760 | 2,332,292 | 23.85 |

OAT HARVEST.

MANITOBA.

| | | | |
|--------------|-----------|------------|-------|
| 1902 | 725,060 | 34,478,160 | 47.5 |
| 1903 | 855,431 | 33,035,774 | 38.62 |
| 1904 | 943,574 | 36,289,279 | 38.80 |
| 1905 | 1,031,239 | 45,484,025 | 42.06 |
| 1906 | 1,155,961 | 46,238,440 | 40.0 |

SASKATCHEWAN.

| | | | |
|--------------|---------|------------|-------|
| 1902 | 193,200 | 6,975,796 | 30.93 |
| 1903 | 280,096 | 9,164,007 | 32.71 |
| 1904 | 346,530 | 10,756,350 | 31.04 |
| 1905 | 439,936 | 19,213,055 | 42.70 |
| 1906 | 545,243 | 21,669,320 | 40.0 |

ALBERTA.

| | | | |
|--------------|---------|------------|-------|
| 1902 | 118,997 | 3,776,976 | 31.74 |
| 1903 | 162,314 | 5,187,511 | 31.95 |
| 1904 | 180,698 | 5,609,496 | 31.04 |
| 1905 | 242,801 | 9,514,180 | 39.18 |
| 1906 | 322,923 | 13,192,150 | 40.85 |

BARLEY HARVEST.

MANITOBA.

| Year. | Acreage. | Yield. Bushels. | Average. Bushels. |
|--------------|----------|--------------------|----------------------|
| 1902 | 329,790 | 11,848,422 | 35.9 |
| 1903 | 326,537 | 8,707,252 | 26.66 |
| 1904 | 361,004 | 11,477,970 | 30.54 |
| 1905 | 432,298 | 14,064,025 | 31.02 |
| 1906 | 474,242 | 74,227,260 | 30.0 |

SASKATCHEWAN.

| | | | |
|--------------|--------|-----------|-------|
| 1902 | 14,275 | 298,632 | 20.91 |
| 1903 | 27,679 | 665,593 | 24.94 |
| 1904 | 24,650 | 598,336 | 24.27 |
| 1905 | 32,946 | 893,396 | 27.11 |
| 1906 | 41,473 | 1,238,190 | 30.0 |

ALBERTA.

| | | | |
|--------------|--------|-----------|-------|
| 1902 | 22,201 | 473,108 | 21.31 |
| 1903 | 42,219 | 1,077,274 | 25.51 |
| 1904 | 61,549 | 1,608,241 | 26.12 |
| 1905 | 64,830 | 1,773,914 | 27.36 |
| 1906 | 75,678 | 2,201,179 | 29.09 |

These figures are so eloquent, so completely explain themselves, and so fully show at a glance the capabilities of the North-West provinces in connection with the three principal grain crops raised, that comment upon them at my hands is superfluous. The *Toronto Globe* last August estimated the total 1906 wheat crop at from 95,000,000 to 100,000,000 bushels, and if any result approximating to this has really been attained, it is calculated it will mean an accession of £20,000,000 to the farmers of Western Canada. It should be remembered that for fourteen years past the average wheat yield of the Western provinces has been 20 bushels, although the highest yearly average has gone as far up the scale as 28 bushels, while even 40 and 45 bushels have been obtained in exceptional cases. When the superior dietetic quality of Canadian spring wheat is taken into consideration, the significance of these wonderful harvests becomes all the more impressive.

CONCLUSIONS :

That the more closely the Agricultural Resources of Canada are investigated the more convincing do the evidences of their great industrial future become.

That the advancing prosperity of Canadian Agriculture is attested by the official returns of the grain harvests of successive years.

That the harvest of 1906 was the greatest on record.

That the grain-growing capabilities of the North-West are probably unique in the world, and justify the boundless optimism of the Canadians.

That millions of acres of the finest agricultural land in Canada are awaiting the advent of British settlers.

That Agriculture, the greatest of all Canadian industries, was never so prosperous or so full of promise as it is to-day, justifying the most brilliant anticipations of the Dominion's future.

CHAPTER III.

AGRICULTURAL CONDITIONS IN CANADA.

AGRICULTURE IN BRITISH COLUMBIA.—SUGAR-BEET CULTIVATION IN ALBERTA.—FARMING METHODS IN CANADA.—THE CANADIAN GOVERNMENT EXPERIMENTAL FARMS. — IRRIGATION ENTERPRISES. — CANADIAN FLOUR-MILLING AND GRAIN ELEVATORS. — SOME CANADIAN AGRICULTURAL STATISTICS.

I NOW propose to deal briefly with the position of agriculture in British Columbia, which cannot, however, be regarded as a grain-growing province in the sense that applies to the North-West provinces. The most westerly province of the Dominion and by far the most picturesque and romantic from a scenic point of view, the physical disposition and contrasts of British Columbia cause it to be subject to many climatic variations. It has a territory within its boundaries of no less than 382,000 square miles, but, owing to its mountainous characteristics, a large proportion of its area is not amenable to agricultural operations of any kind. Nevertheless, there are large and fertile valleys, in which farming and stock-raising are vigorously carried on, the fine soil of its farm lands producing magnificent crops of grain and many excellent fruits in abundance.

The principal crops raised are hay, oats and various roots, amongst which last the principal are potatoes, while smaller areas are devoted to the cultivation of barley and wheat. Hops make a successful crop in various districts in the province, and flax of a kind producing a superior fibre is grown in increasing quantities. Dairy-farming is making great progress, and a number of butter factories have been established at various points throughout the province, giving promise that this branch of agricultural industry, and especially, in this connection, mixed farming, including in many cases fruit-growing, will develop in the near future.

In the valley of the Fraser River perhaps the majority of the population are engaged in agricultural pursuits, as large areas of land there are specially adapted to farming requirements. In the large and fertile valleys lying between the Rocky Mountains and the Coast Range crop-farming and ranching have attained important dimensions, but owing to the paucity of the rainfall

crop cultivation cannot be successfully carried on without irrigation. It is probably as a fruit-growing country that British Columbia will most distinguish itself in the matter of Agriculture in the future, as the climatic conditions enable the production of fruit to take place under the most satisfactory commercial conditions. As matters stand at present, the crop production of the province is to a large extent absorbed by local needs, but in future an increasing export trade from the Pacific seaboard may be anticipated.

I have already endeavoured to show that in several, indeed most, of the Canadian provinces the cultivation of sugar-beets is being pursued with a good deal of vigour and success, which, from all accounts, are likely to become accentuated as time goes on. Large crops are obtained in many districts, and the roots are for the most part of excellent saccharine quality. The soil of Alberta is well adapted for the cultivation of the principal root crops raised elsewhere in Canada, but in a special measure are the land and climate of the southern portion of the province adapted for the raising of sugar-beet crops.

At Raymond a beet-sugar factory has been in operation for three or four years past, and the beets raised in the neighbourhood are pronounced to be of superior quality as regards their percentage of saccharine matter, with the result that the factory in question has turned out large quantities of excellent quality sugar. In 1905 no less than 4,600,000 lbs. of sugar was produced, as compared with 800,000 lbs. in 1903, when the factory commenced manufacturing operations. At various points within easy access of the Canadian Pacific Railway, between Medicine Hat and Calgary, sugar-beets have been raised with the best results.

Concurrently with the rapid increase of the areas of agricultural land under cultivation throughout the Canadian provinces there has been a corresponding advance in the methods of farming adopted. Generally speaking, apart from the rudimentary and preliminary work of individual settlers, farming operations are carried on throughout Canada on modern and scientific principles. The implements and machinery employed are almost invariably of modern type, and for the most part either of Canadian, British or United States' manufacture.

Canada is rapidly becoming independent of extraneous assistance in the matter of the supply of agricultural implements and machinery and dairy appliances. For her own use these are being manufactured to an ever-increasingly large extent in Canada, and more particularly in Quebec, Ontario and Nova Scotia. Some of the engineering works and machine shops which specialise in this class of mechanisms have attained large

dimensions and carry on a prosperous trade; and one of the typical agricultural engineering establishments of Canada—which claims to be the largest undertaking manufacturing agricultural implements under the British flag, and, with one exception, the largest makers of such mechanisms in the world—forms the subject of a subsequent chapter in the Section of this volume which is specially devoted to “Canadians as Engineers.”

Moreover, Canada, in her agriculture, as in other things, resembles her neighbour to the south in her love for bigness. Whatever may be the case on the smaller farms in the East, on the large holdings in the West and on the vast undulating prairie lands the soil is cultivated and the crops harvested with the aid of mechanical appliances cast on a gigantic scale, unknown to, and unseen in, this country. Traction engines there will haul a series of ploughs, and mammoth steam ploughs will pierce the soil at the rate of so many dozens or scores of furrows at a time, advancing across the land like a regiment of cavalry which nothing can resist.

So, too, with the threshing arrangements. They will thresh from the “stook” on the field—if “field” can be used to describe a vast tract of prairie land, dotted for miles round in every direction with golden stooks of wheat—with a little army corps of machines hauled by, and driven from, a monster traction engine, emitting the straw from a huge spout in a continuous flow, like a volume of water raised by a powerful pump. A day with the threshers in the West is a revelation to the stay-at-home agriculturist. And short shrift is made of the straw. Huge bonfires are made of it, which illuminate the sky at nights as the blast furnaces do in our own Black Country, and, like the magnificent prairie sunsets, they remain in one's memory as distinct features of Western experience. Electricity, too, now plays its part in Western farming practice, and large plants of threshing machinery may be seen on the field driven by that power. Indeed, what may be termed the agricultural field equipments and outfits in the West form an outstanding feature of modern Canadian farming operations, and startle and surprise us, with the insular notions which we hug to our bosoms in the Old Country, as to how to farm successfully and profitably on a large scale.

Much of the practical success which has been characteristic of Canadian Agriculture is unquestionably due to the fostering influences of the Dominion and Provincial Governments. In no country in the world, I should imagine, are the efforts of the agricultural community better supplemented by educative influences than in Canada. To begin with, nothing has had a more beneficial effect upon the agricultural industries of the Colony than the experimental farms organised and maintained

by the Dominion Government. The earliest of these farms were, I believe, established as long ago as 1887 in different parts of the Dominion, and these original farms have been since supplemented by others in various parts of the Colony.

The Central Experimental Farm is situated at Ottawa, where it serves a most valuable purpose as a practical aid to agriculture in the Provinces of Quebec and Ontario. There is a branch farm at Nappan, Nova Scotia, which fulfils similar functions for the benefit of the farmers of that province, and also those of New Brunswick and Prince Edward Island. Another branch farm is established at Brandon, in Manitoba, in the very centre of the great wheat-producing country of that province; a third is located at Indian Head, in Saskatchewan; a fourth at Agassiz, in British Columbia; while, if I am not mistaken, others of more recent establishment exist elsewhere.

One of the principal *raison d'être* of these farms is to conduct experiments as to the best methods of preparing land in the different districts as it is cleared and opened up for farm purposes, and to ascertain the various crops which can be raised thereon to the best advantage. Experiments are also carried on in the feeding of cattle, sheep and swine for food purposes, the feeding of cows for the produce of the dairy, and of poultry for table purposes and the production of eggs. Moreover, the merits of untried cereals, grasses and other field crops, forage plants, fruits and vegetables are tested, and samples freely distributed amongst farmers for trial on their own land.

Then these strictly Government efforts are supplemented by the educational influences of special Agricultural Colleges or Schools for the practical training of young men in farming operations. Such schools are established in Ontario, Quebec and Nova Scotia, and I rather think something equivalent to them is to be found in the West as well. In addition to these, there are farmers' institutes, live-stock associations, agricultural societies, travelling dairies and annual agricultural shows galore. Every encouragement and inducement to excel is provided, and of these the farmers and agricultural students take the fullest advantage.

One other subject of importance I would gladly deal with here, and that is irrigation, the practical effects of which have been so beneficial to Agriculture in many districts in Canada, especially in the West. But the question of irrigation is of such importance that I will devote a later chapter to it, and describe therein one of the largest irrigation schemes either in Canada or the American Continent, embracing, as its operations ultimately will do, some three million acres eastward of Calgary, and due to the indomitable enterprise and all-embracing resource of the

Canadian Pacific Railway. I may also remark here that while the great railway companies interest themselves in the question, as it is one which necessarily greatly concerns their earning capacity in the future, many individual owners and ranch companies irrigate their own land, and various large corporations carry on the work on an extensive scale. The Alberta Railway and Irrigation Company, whose headquarters are at Lethbridge, and the Calgary Irrigation Company are cases in point.

From the statistics I have given with regard to the crop results of the North-West, it will be understood that harvesting operations must necessarily put a heavy strain upon the agricultural population of the three provinces. In fact, they are out of their own population unable to cope with the work that has to be done. As the result, they import during the harvesting season from 10,000 to 20,000 farm labourers from Ontario and Quebec, the bulk of whom go to Manitoba, where the crops are heaviest, earning good wages while they are on the spot. Many of them elect to remain and become settlers themselves.

Then, again, it goes almost without saying that, with such immense wheat resources available, flour-milling soon established itself in a position of industrial prominence in these wheat-growing provinces. Thus I found that flour-milling is now the most important manufacturing industry in Western Canada, securing not only a ready market for its product throughout the Dominion itself, but exporting flour in barrels in large and increasing quantities to Great Britain, Newfoundland, Australia, South Africa and the Far East. In a subsequent chapter I take occasion to describe one of the representative flour-milling enterprises of Canada, which has mills and elevators in the West as well as in the East, and I have in the course of one of my chapters on Port Arthur, described the largest elevators in the Dominion, which are situated at Port Arthur, the Lake Superior terminus of the Canadian Northern Railway.

There are at present no fewer than 1,018 elevators west of Lake Superior, having an aggregate capacity of 28,768,030 bushels, roughly equivalent to capital represented in grain of something like £11,000,000. East of Lake Superior there are rather fewer elevators, but their capacity is equal to 18,000,000 bushels. The grain elevators now in existence in Western Canada alone have, I understand, a collective capacity which would enable them to handle, if necessary, as prodigious a quantity of grain as 125,000,000 bushels in less than six months' time.

The storage capacity available is increasing as rapidly as the wheat resources of Western Canada are exploited, and while in 1891 the total storage capacity available was only 7,628,000

bushels, this had been increased by 1901 to 18,879,352 bushels. This aggregate had advanced in 1904 to 41,186,000 bushels. A recently-published summary of the capacity of the elevators owned by the Canadian Pacific and Canadian Northern Railways respectively—which may not, however, be absolutely complete, as new elevators are being continually erected in one part of the country or another, and the storage resources become ever correspondingly and rapidly increased—gives the following figures :—

| | Bushels. | Bushels. |
|----------------------------------|------------|------------|
| Canadian Pacific Railway— | | |
| Ontario | 12,217,000 | |
| Manitoba | 14,078,500 | |
| Saskatchewan and Alberta | 8,614,000 | |
| | | 34,909,500 |
| Canadian Northern Railway— | | |
| Ontario | 6,467,000 | |
| Manitoba | 4,780,400 | |
| | | 11,247,400 |
| Grand total | | 46,156,900 |

A few further statistics will enable the reader to appreciate more fully the agricultural situation in Canada to-day. The Dominion has, of course, a great and increasing home consumption of its own agricultural produce, but it necessarily looks for its future agricultural development in the direction of its export trade. The following figures represent the value of Canadian exports of grain for the years 1903, 1904, and 1905, those for 1906 not being accessible to me at the time of writing :—

CANADIAN GRAIN EXPORTS.

| | 1903. | 1904. | 1905. |
|----------------------|------------|------------|------------|
| | Dollars. | Dollars. | Dollars. |
| Barley | 457,233 | 489,437 | 514,852 |
| Beans | 79,621 | 133,457 | 304,719 |
| Buckwheat | 175,394 | 234,029 | 280,964 |
| Indian Corn | 36,325 | 45,045 | 35,102 |
| Oats | 2,583,151 | 1,603,104 | 862,040 |
| Pease, whole | 1,052,743 | 1,133,268 | 617,717 |
| Pease, split | | | 100,704 |
| Rye | 269,952 | 54,902 | 12,620 |
| Wheat | 24,566,703 | 13,465,351 | 12,386,743 |
| Other Grains | 3,299 | 404 | 9,956 |
| Total Grains | 29,224,421 | 17,158,997 | 15,125,417 |

In addition, Canada exported wheat-flour, oatmeal, bran, malt and other cereal foods in 1905 to the total value of 6,566,826 dollars, in 1904 to the value of 6,947,929 dollars, and in 1903 to the value of 5,274,776 dollars, of which totals 5,877,609 dollars, 6,129,226 dollars, and 4,699,143 dollars respectively represented the value of wheat-flour alone exported by Canada. This product (wheatmeal and flour) we, in this country, absorbed from Canada in quantities of the value of £1,014,124 in 1904, £653,804 in 1905, and £870,707 in 1906. Canadian wheat we imported to the value of £2,229,791 in 1904, £2,412,137 in 1905, and £4,041,443 in 1906. It will be seen, therefore, that this country is an increasingly valuable customer for the wheat products of Canadian husbandry.

No quite recent or complete returns are available on this side as to the agricultural position of Canada as a whole, save the last Census statistics, and these can only now be regarded as applying approximately to the existing position, and hardly at all in so far as they refer to the North-Western region. However, in 1901 there were officially reported to be 544,688 occupiers of farm lands in the Dominion of Canada, and of these 91,186 occupied 10 acres and under and 64,655 201 acres and over. For the same year the farm lands were appraised at a total value of 1,007,454,358 dollars, those in Ontario representing 536,755,663 dollars, and those in Quebec 248,236,361 dollars. The farm buildings in the Dominion as a whole were valued at 395,815,143 dollars, the farm implements at 108,665,502 dollars. the field crops at 194,953,420 dollars, and the live-stock at 275,167,627 dollars—figures which, for the most part, must necessarily since have been in all, or most, cases considerably advanced.

Unlike other interests and industries in Canada, farming goes on through good times and bad, and, on the whole, it would be difficult to find a more prosperous community than the agriculturist element in the Colony. The homesteads which have been established a few years, and seen some measure of prosperity, are snug and comfortable—many of them, indeed, are models of country homes, built on ambitious lines, furnished and appointed with taste, and surrounded with delightful gardens and lawns. Indeed, the home amenities of the more cultured families are among the most delightful features of Canadian life, while the hospitality extended to the stranger is as generous as it is unostentatious. An experience of it tends to strengthen one's convictions as to the stability and permanency of Agriculture as a factor in maintaining and developing the prosperity of Canada.

CONCLUSIONS :

That the latent Agricultural Resources of British Columbia are as various ■ they are extensive, and with increasing markets will repay energetic exploitation.

That a coming industry in Alberta is the cultivation of sugar-beets and the manufacture of sugar therefrom.

That Canadian methods of farming come as ■ revelation to the British agriculturist.

That the Canadian Government's Experimental Farms have been of the greatest possible service to the advancement of Agriculture in the Dominion, and that the Home authorities might well take a leaf out of the book of the Colonial Government in thus fostering farming industry.

CHAPTER IV.

DAIRY FARMING AND BUTTER AND CHEESE PRODUCTION.

DAIRY FARMING A SUCCESSFUL BRANCH OF AGRICULTURE IN EVERY PROVINCE IN THE DOMINION.—FACTS AND FIGURES RELATING TO THE PRODUCTION OF BUTTER AND CHEESE IN CANADA.—CANADIAN EXPORTS OF BUTTER AND CHEESE, AND BRITISH IMPORTS.—THE COOL-CURING OF CHEESE BY CANADIAN MAKERS.

IN my last two chapters I dealt somewhat fully, in general terms, with the grain and root-growing resources of Canada ; but other great branches of the agricultural industry which flourish with an amazing prosperity in the Dominion remain yet to be considered. Chief amongst these is dairy farming, with its allied industries of butter and cheese manufacture ; ranching and live-stock raising ; and fruit-growing, with the preserving and packing trades as all-important auxiliary activities thereto. In proposing to confine myself in this chapter to dairy farming, and to butter and cheese manufacture in particular, I confess that I am somewhat overwhelmed by their extent and many-sidedness. While the grain-growing capacities of the several Canadian provinces differ widely, owing to geographical circumstances, the physical characteristics of the Dominion as a whole are admirably suited to dairy farming, and in many cases to "mixed farming," which may embrace, according to the district in which it is carried on, grain and root growing, dairy farming, cattle and sheep raising, horse breeding, swine and poultry farming, and fruit and vegetable growing. Any or all of these are to be found in conjunction, and in many cases are carried on upon a large and successful commercial scale with which we in this country are unfamiliar.

Dairy farming and butter and cheese production are carried on, either separately or in conjunction, in all the provinces of the Dominion. Dairy farming, indeed, flourishes practically throughout the length and breadth of the Dominion, veritably from the Atlantic seaboard to the Pacific Coast. On varying scales of importance it has been prosecuted vigorously from the earliest days of Canadian settlement, and in some parts of the Dominion

dairying, in conjunction with butter and cheese manufacture, is to be found carried on upon an industrial scale which, I should think, is unexampled in any other country. At all events, as I passed on my journey through Quebec and Ontario, and away Westwards through Manitoba, Saskatchewan and Alberta, I was profoundly impressed with what I saw in this dairying connection, whether considered as a separate branch of Canadian agricultural activity, or as an auxiliary to grain-growing and ordinary mixed farming.

The sort of survey I had to make had, of course, its disadvantages, as well as its advantages. There was so much to see and do, and so comparatively little time in which to accomplish my considerable task, that I have had to supplement my investigations on the other side by inquiries and research on my return home. Consequently, some of my chapters necessarily partake of a statistical character, while they also give, in combination therewith, the results of my observations on the spot.

The position of the dairying industry in Canada will be best understood if I premise my further observations by a statement of facts and figures relative to butter and cheese, which form the most important outcome of dairy farming in the Dominion. And first let it be freely stated that the Canadian Government, which has done so much to foster the growing industries of the Dominion, has in no direction done more valuable work than in promoting the practical interests of the dairying industry. For the most part, too, operations are carried on upon thoroughly modern and scientific lines, which put to shame the methods adopted in perhaps the majority of the less pretentious dairy farms in this country. Moreover, there has been a desire on the part of Canadian dairy farmers to cultivate the British market assiduously, and not only to cultivate it in a commercial spirit, but with a desire really to meet the wishes, and even, if I may so express it, the prejudices, of this market as regards cheese and butter supply.

I notice in the annual report of the Dairy Commissioner for the Dominion of Canada, which has been published by the Canadian Minister of Agriculture at Ottawa, that it is remarked "there seems to be a genuine desire to promote Canadian trade, partly on patriotic grounds, but chiefly because of the generally satisfactory character of our produce. A confidence in the purity of the butter, cheese, &c., in these days of adulterated products is a very strong point in our favour." Reporting on a journey which he had made in the United Kingdom, the Dairy Commissioner states he found that Canadian butter had advanced immensely in public estimation in the United Kingdom, while, although the position of Canadian cheese in our market was assured, there was still room for improvement. He also takes

occasion to express satisfaction at the competition in the United Kingdom which Canadian butter has to meet with from other countries, because it indicates that "it is possible for Canadian butter to replace that which comes from other countries to an almost indefinite extent."

As a matter of fact, Germany, which used to export butter to England, is now importing it in annually increasing quantities. Then, again, I find that last year, out of a grand total of 130,062 tons of cheese imported by the United Kingdom, 101,754 tons was of Colonial production, and of this product 95,884 tons came from Canada, whilst our imports of cheese from the United States only amounted to 10,676 tons. There has, indeed, been as striking a fall in the amount of cheese imported by this country from the United States as there has been an increase in our imports of the same article from Canada.

Then, as regards our importation of Canadian butter, we last year imported 15,145 tons out of a total Colonial production of 57,272 tons, our total butter imports for the year being 215,493 tons, of which Denmark supplied the largest individual amount, 81,261 tons. There is a disposition on the part of many of those engaged in the dairying industry in Canada to go in more largely for butter manufacture than cheese-making, and this tendency meets with encouragement from the Canadian Government, which sees in this disposition opportunity for cultivating more energetically an export trade in butter, now less vigorous than that of cheese. There is a liability to over-production with regard to cheese which is not met with in the case of butter. Western Canada is exporting freely to Japan and other Far Eastern markets, while Montreal maintains an increasing lead as an outlet for the Canadian dairy and other agricultural produce of Eastern Canada.

In her dairying industry, as in others, 1906 proved, in various respects, a record year for Canada, and I notice that, in summing up the cheese situation in Canada at the beginning of the present year, the *Montreal Gazette* remarks that, while the make of cheese was not equal to that of some previous seasons, "the high prices prevailing throughout the entire season eclipsed anything in the records of the industry, and resulted in much larger returns to the farmer this last season. The natural result, however, of the high prices was that the make largely turned to cheese, and, as a consequence, there was a marked falling off in the make of butter, resulting in decided scarcity and exceptional prices towards the close of the season."

It seems, according to figures taken from the source just quoted, that the aggregate value of the Canadian cheese and butter exports for the season of 1906 was 26,030,212 dollars,

against 25,689,845 dollars for 1905, which represents an increase of 340,367 dollars in the aggregate value of last season's exports. Thus, "allowing for the cheese sale to go forward say three hundred thousand boxes, we have a total of approximately 29 million dollars as the returns to the Canadian dairy farmer from the season's exports."

How far progress has marked the Canadian export trade in cheese and butter is indicated by the following tabular statements, which I reproduce from the *Montreal Daily Witness*. They indicate at a glance the shipments of the two products from the port of Montreal alone—which, as I have said, is the principal outlet for Canadian dairy produce—during the past ten years:—

CANADIAN BUTTER EXPORTED FROM MONTREAL.

| Year. | | | | Quantity : Packages. | Value : Dollars. |
|-------|----|----|----|-------------------------|---------------------|
| 1906 | .. | .. | .. | 361,400 | 4,770,480 |
| 1905 | .. | .. | .. | 573,449 | 7,397,492 |
| 1904 | .. | .. | .. | 490,300 | 5,295,240 |
| 1903 | .. | .. | .. | 338,277 | 4,059,324 |
| 1902 | .. | .. | .. | 539,845 | 6,748,262 |
| 1901 | .. | .. | .. | 410,000 | 6,027,000 |
| 1900 | .. | .. | .. | 250,000 | 3,640,000 |
| 1899 | .. | .. | .. | 451,050 | 5,998,000 |
| 1898 | .. | .. | .. | 270,000 | 3,307,500 |
| 1897 | .. | .. | .. | 200,000 | 2,697,000 |
| 1896 | .. | .. | .. | 157,321 | 1,800,000 |

CANADIAN CHEESE EXPORTED FROM MONTREAL.

| Year. | | | | Quantity : Boxes. | Value : Dollars. |
|-------|----|----|----|----------------------|---------------------|
| 1906 | .. | .. | .. | 2,227,838 | 20,941,677 |
| 1905 | .. | .. | .. | 2,121,101 | 18,029,358 |
| 1904 | .. | .. | .. | 2,114,639 | 14,379,545 |
| 1903 | .. | .. | .. | 2,395,932 | 21,563,538 |
| 1902 | .. | .. | .. | 2,109,171 | 17,927,000 |
| 1901 | .. | .. | .. | 1,791,613 | 12,541,291 |
| 1900 | .. | .. | .. | 2,077,000 | 16,560,000 |
| 1899 | .. | .. | .. | 1,896,496 | 14,698,000 |
| 1898 | .. | .. | .. | 1,900,000 | 12,065,000 |
| 1897 | .. | .. | .. | 2,102,985 | 14,195,000 |
| 1896 | .. | .. | .. | 1,726,237 | 11,605,000 |

There are not, so far as I have been able to ascertain, any means of arriving at an authentic calculation of the entire dairy production of Canada or of its own consumption of dairy products, so that, in computing the value of the industry as a whole, one must necessarily deal to a great extent with assumptions and estimates. On the basis of the Census returns of 1901, it was calculated that the total value of Canadian dairy products for that year was over 80 million dollars. These figures showed that the total value of the dairy products in 1900 was estimated at 66,470,953 dollars, which total included the milk sold for direct consumption or supplied to cheese factories, creameries and condensed milk factories, and also the butter and cheese manufactured on farms.

Some further interesting figures may be appended, although these can only be regarded as approximate in their application to butter and cheese production as the position stands at present. There were in British Columbia eight farm establishments or factories engaged in the production of butter, and the value of their total output of butter in 1901 amounted to 105,690 dollars; Manitoba had 69 factories, which produced butter to the value of 292,247 dollars and cheese valued at 124,025 dollars; New Brunswick had 68 factories, producing butter valued at 58,589 dollars, and cheese valued at 187,106 dollars; Nova Scotia had 33 factories, producing butter to the value of 68,686 dollars, and cheese 58,321 dollars; Ontario, with 1,336 factories, produced butter valued at 1,527,935 dollars, and cheese 13,440,987 dollars; Prince Edward Island, with 47 factories, produced butter valued at 118,402 dollars, and cheese valued at 449,400 dollars; Quebec, with 1,992 factories, produced butter valued at 4,916,756 dollars, and cheese valued at 7,957,621 dollars; and the Territories, including what are now the Provinces of Saskatchewan and Alberta, with 23 factories, produced butter valued at 152,667 dollars, and cheese valued at 3,970 dollars.

Summarising the principal contributing figures, the following results are found as applying to the whole of the Dominion :—

| | | | | |
|------------------------------|----|----|-------|-------------|
| Total number of factories.. | .. | .. | | 3,576 |
| Value of buildings and plant | .. | .. | dols. | 6,164,649 |
| Number of persons employed | .. | .. | | 6,886 |
| Salaries and wages paid | .. | .. | dols. | 1,464,110 |
| Butter produced | .. | .. | lbs. | 36,066,739 |
| Cheese produced | .. | .. | lbs. | 220,833,269 |
| Value of butter | .. | .. | dols. | 7,240,972 |
| Value of cheese | .. | .. | dols. | 22,221,430 |
| Total value of products | .. | .. | dols. | 29,462,402 |

The increase that is taking place in butter and cheese production can be appreciated from the following figures: the total value

of the butter and cheese produced in Canada in 1871 was 1,601,738 dollars; in 1881, 5,805,932 dollars; in 1891, 9,784,288 dollars; and in 1901, 29,462,402 dollars, as mentioned above. With the since increased population and demand and "booming" prosperity, it is obvious that the production and consumption during the five years which have elapsed since the Census took place must have very materially increased.

From the figures I have given—necessarily incomplete as they are—the financial and industrial significance of the Canadian dairying industry as a whole may be appreciated; but, in order to indicate the position of the export cheese trade of Canada in relation to that of others of our Colonies and foreign countries which supply our cheese market, I quote a tabular statement which appeared in the *Montreal Gazette*, showing our own import trade position with regard to the important product under notice:—

UNITED KINGDOM CHEESE IMPORTS.

| Year ending June 30th. | From Canada. | New Zealand. | Australia. | Total Colonial. | United States. | Other Countries. | Grand Total. |
|---------------------------|-----------------|--------------|------------|--------------------|-------------------|---------------------|-----------------|
| | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. | Tons. |
| 1900 .. | 70,549 | 3,973 | 180 | 74,702 | 32,183 | 21,720 | 128,605 |
| 1901 .. | 77,267 | 4,186 | 7 | 81,460 | 28,034 | 21,544 | 131,038 |
| 1902 .. | 76,297 | 2,710 | — | 79,007 | 26,154 | 26,091 | 125,252 |
| 1903 .. | 87,883 | 2,617 | — | 90,500 | 17,785 | 21,314 | 129,599 |
| 1904 .. | 98,306 | 4,111 | 18 | 102,435 | 14,334 | 19,008 | 135,777 |
| 1905 .. | 92,308 | 4,072 | — | 96,380 | 9,387 | 16,331 | 122,098 |
| 1906 .. | 95,884 | 5,870 | — | 101,754 | 10,676 | 17,632 | 130,062 |

Leaving until my next chapter specific details as to dairy-farming operations in some of the individual provinces of Canada—and in this connection Alberta is making remarkable progress, official anticipations being to the effect that butter-making will for some time be a leading industry of the province—I may say that I am thoroughly satisfied that the future of the Canadian export trade in butter and cheese to this country is assured, if sustained efforts are made to keep up the quality of the product. This is a cheese-eating country, and London is an enormous consumer. It is, indeed, the principal market for Canadian cheese, and last year's importations by the Metropolis amounted to no less than 123,918 boxes over the figures for the previous season. Liverpool, Glasgow and Bristol also receive large quantities, but London holds the key of the cheese situation so far as the Canadian export trade is concerned.

In this connection it is worth mentioning that the advantages obtained from the cool-curing of cheese by the Canadian makers have an important influence on the quality of and the demand for the product. For experimental purposes the Canadian Government built in 1902 some cool-curing rooms, and, as their success has been clearly demonstrated, the Government has withdrawn from the experiment fully convinced that it has had the desired effect. I am not, therefore, surprised, from what I heard and saw on the other side, that these cool-curing establishments represent—to quote from the Dairy Commissioner's report, to which I have already referred—"one of the most important movements which the Canadian cheese industry has ever seen, and as it becomes more general it is bound to have a profound influence on the cheese trade."

Moreover, the Canadian Government is fostering the dairying industry of the Dominion in other important particulars. It is doing valuable work in stimulating efforts to improve the dairy herds, and it is encouraging the organisation of cow-testing associations. Moreover, the Dominion Government offers a bonus of 100 dollars as an inducement to the owners of creameries to provide cold storage, and up to the present time I believe that as many as 306 creameries have received the bonus in full, and nearly 300 more reduced bonuses.

CONCLUSIONS :

That the Dairying Industry of Canada is one of the most promising branches of Agriculture in the Dominion.

That the manufacture of Canadian Cheese and Butter is an industry of increasing importance, and one which must necessarily advance from the points of view both of exportation and of home consumption.

That 1906 was in many respects a remarkable year in the annals of Canadian Dairying Industry, and that prospects are entirely favourable to great developments.

That while Dairy Industry flourishes in all the Canadian Provinces, it has nowhere made more progress than in Alberta, where butter-making is expected to become a leading industry.

That, as the British demand for Canadian Dairy Produce increases, numerous fresh channels for the investment of British capital will present themselves.

CHAPTER V.

DAIRY FARMING IN NORTH-WESTERN CANADA.

THE DAIRYING INDUSTRY OF MANITOBA.—WESTERN CANADIAN DAIRY PRACTICE.—DAIRYING PROSPECTS IN SASKATCHEWAN AND ALBERTA.—CANADIAN CHEESE IN THE ENGLISH MARKET.—TRANSPORT ARRANGEMENTS.

IN my last chapter I dealt chiefly with the statistics of dairy farming in Canada, with particular relation to the manufacture of cheese and butter, but the subject is such a wide one and presents so many ramifications that it is difficult to compress the facts and figures into a concrete, and, if I may so express it, a comprehensively concise form. First, however, let me repeat that dairy farming operations, with their allied activities, are vigorously carried on in every province of the Dominion, although in some this is more marked than in others. The dairying situation in Canada is really this: that while in some regions dairying industrial interests are increasing, in others they are decreasing, owing to circumstances connected with the increase or decrease of crop-farming operations.

Let me glance first at dairying in Manitoba. The wheat-growing resources of that province are so prodigious that it is in that connection it is chiefly known to business people at home. There was a time when grain-growing was practically the sole agricultural industry of the province, but for several years past dairy farming and live-stock raising have attracted a large amount of attention. Statistics for the year 1905 put it on record that the number of cattle in the province was 306,943, of which 127,562 were milch cows. It will be seen, therefore, from these figures that the dairy industry is now becoming an important branch of agriculture in Manitoba—much more so than the last Census figures represented to be the case. The Provincial Government established a dairy school at Winnipeg in 1896, and it was at that establishment that many of the skilled operators now in charge of creameries and cheese factories throughout the province were trained.

Every facility and encouragement is given to those who desire practical training, and the country presents such opportunities for profitable dairy farming, owing to the richness of its pastures,

the luxuriant growth of its nutritious and variously-flavoured grasses, and its excellent water supply, that it is not surprising to find it making rapid headway, giving promise that dairy industry will sooner or later become a very valuable auxiliary to the grain crop production of the province. Indeed, already the figures are mounting up, for the statistics for 1905 show a production of 2,881,351 lbs. of dairy butter, valued at 457,844 dollars; 1,067,243 lbs. of creamery butter, valued at 202,766 dollars, and 1,172,130 lbs. of cheese, valued at 107,836 dollars.

Dairy farming in Manitoba has also the advantage of having a large and prosperous city as a convenient central distributing point for produce. Winnipeg is the gateway of the West, and also the central distributing point for the province in particular. It is in itself a market for a great deal of the dairy produce of Manitoba, and it is growing so rapidly—as, indeed, is the population—that there is an increasing market for the dairy products of the province within its own area. As in Saskatchewan and Alberta, mixed farming, of which the productions of the dairy, eggs and poultry form proportions of importance, is becoming a form of agriculture widely practised.

It was one of the disappointments of my tour that I was unable to visit personally one of the numerous large creameries that exist in Manitoba, but circumstances enabled me to glean some useful data at first hand with regard to these establishments, and to the dairying industry of which they now form an integral part. The creameries, which are established on co-operative principles, and controlled now by the Provincial Government, although formerly by the Canadian Government, are situated at various points throughout the Western Provinces, being equipped with adequate cold-storage rooms and the most scientific appliances which modern dairying engineering has devised. Moreover, the Canadian Pacific Railway Company have an excellent organisation of refrigerator cars, which enable perishable produce to reach its markets in the best condition.

Although time did not permit of my availing myself of such opportunities as presented themselves for visiting creameries in either Eastern or Western Canada personally, still, ample opportunities were afforded of convincing me of the excellence of the practice adopted and the superiority of the machinery and plant employed. If there is one thing more than another in connection with agricultural enterprise in Canada that impresses the investigator it is the scientific superiority of the dairying methods applied. I suppose that nowhere in Canada could a better exemplification of the best practice in modern dairying industry be found than at the Agricultural College at Winnipeg, and it was a regret to me that I was unable to visit the establishment.

Still, information was forthcoming which impressed me forcibly, and I found in an issue of the *Winnipeg Telegram* a very clear account of how matters are conducted there, which, I am credibly informed, may be taken as typical of the best dairy practice in Canada.

It seems that there is taken into the dairy of the Agricultural College something like 2,500 lbs. of milk every morning, which is converted in due course into cream, butter and cheese. First of all, after being weighed, the milk is poured into a kind of hopper, whence it passes into a large receptacle in the cream separating and butter-making room. Here the separator separates the cream from the milk and butter-making commences. At the same time the cream and the milk are clarified. From one outlet streams the warm, rich cream (which in the separator had been heated with its component milk to a temperature of about 90 degrees), and from another emanates a stream of white, thin milk, which in this country we would call "skim-milk," which goes to put into marketable "dairy fed" condition the thousands of pigs which enjoy a short span of comparatively luxurious life in the neighbourhood of the college.

The separators, it would seem, not only separate the cream from the milk—securing at the same time the maximum amount of butter fat, upon which the success of butter-making largely depends, as I explain more fully in another chapter of this volume*—but also the integral grit which has become associated with the milk from the subsequent product. It is startling to hear that, even under the best circumstances in Western Canada, there remains as the result of a day's work something like a couple of inches of "pure dirt" inside the outer covering of the separator, which is very properly, I understand, promptly "destroyed." The labels which issue from the Winnipeg Agricultural College guarantee that the milk sent out therefrom contains 4 per cent. of butter fat, and the cream 25 per cent. The process employed here is that of Pasteurising, not merely sterilising, the milk, and the very bottles themselves into which the product is put are sterilised by being baked for an hour in 212 degrees of heat.

As regards butter-making, the cream is first allowed to run into a long vat, in which it sours. After standing about a day in this condition, it passes into a large separator, where the buttermilk is separated from the butter, and next it is introduced into large churns, varying in size from the capacity of 500 to 1,000 lbs. Here it is again separated, churned and cut into one-pound lumps without being touched by hand, until, indeed, it is put into wrappers, and then it is still separated from the

* See "Canadians as Engineers," pages 398, &c.

actual touch of the human hand. The matter of cheese production proceeds on a somewhat more ambitious scale, on what I might term factory lines, but in every particular the same cleanliness and care are integral features and no doubt the observance of these rules generally has done much to help to build up the butter and cheese industry of Canada into its present prominent and prosperous position in the world's dairy farming interest.

Saskatchewan, like its western sister provinces, has been adapted by Nature seemingly for the development of dairy enterprise, and numerous creameries on the co-operative principle have been established by the Government, which supervises and controls them. An advance of ten cents per pound of butter manufactured from the cream supplied by each patron is made monthly, and the balance is paid at the end of the season. Altogether, the conditions which prevail over the vigorous development of a great industry in all its ramifications in Saskatchewan are practically ideal, while the rapid growth in population of the province offers a further guarantee of good local markets for produce, British Columbia and the Yukon being always good stands-by outside of the immediate provinces themselves. Much of the produce, of course, finds its way eastwards and has an outlet at Montreal generally, and also at Fort William, Port Arthur and St. John, New Brunswick. In fact, of the total cheese exports of the Dominion about 77 per cent. are shipped from Montreal, of butter exports 93 per cent., and of bacon 33 per cent.

The subject of dairying industry in Canada, especially with regard to the possibilities which it presents for the future in the matter of commercial development on a large scale with a view to British capitalisation, is so large a one that it precludes my dealing with it adequately in the course of a single chapter of a work like this. I have, however, already indicated in the briefest way those provinces of the Dominion which commend themselves to agriculturists on the ground of their dairy-farming possibilities. And, as I have said, there is hardly any province in the Dominion which does not offer encouragement in this direction. Nova Scotia, New Brunswick, Quebec, Ontario and the Western Provinces alike offer advantages of no mean description, and in several districts in these provinces dairy farming has become the most important branch of Agriculture. Possibly, however, South-Western Saskatchewan and Southern Alberta are at the present moment the most encouraging and the widest areas for exploitation in this direction. So far as live-stock rearing and ranching are concerned, Northern Alberta is the district which offers most opportunities for development, and especially is this the case with regard to the association of live-stock breeding

and grain-crop raising with dairying industry and mixed farming, as I shall have occasion to point out more particularly in a future chapter. The pure water, which is found in abundance, and the cool nights during the hotter seasons, are eminently favourable to dairy farming.

In some places the animals have to be fed and sheltered for three or more months during winter, but in other districts, again, this is not necessary, cattle and horses being allowed to roam at large on the boundless plains, living out during even the severest months on the ordinary grass, although many farmers provide wild hay for use during periods when a thaw is followed by a frost. In the West, also, the irrigation arrangements which are in progress are of great assistance in connection with the raising of fodder and grain crops. Under most circumstances it is regarded as practically a certainty that dairy farming will pay all the ordinary living and farming expenses of the average holding, while poultry farming offers an easy and ready source of additional profit.

As matters stand now, the districts which were formerly utilised for dairy and mixed farming and for ranching are gradually being pushed Westward. It is in Western Canada that dairying operations at the present time offer perhaps the greatest scope for exploitation on a large commercial scale under ambitious financial conditions, but in no province in the Dominion, so far as I have been able to gather, are there not available abundant opportunities under existing conditions for remunerative development. Official anticipations seem to be all in favour of the rapid progress of Alberta as a centre of dairying industry. So far as the raising of cattle is concerned, whether for dairy purposes or for beef, no province in the Dominion boasts such resources as Alberta. All the physical and other conditions of the province seem to have been designed with a special view to successful dairying and ranching operations on a huge scale.

The result of the existence of such a set of circumstances is that, so far as dairying is concerned, the province has made remarkable headway within the past two or three years, and promises ultimately to become probably one of the greatest dairying territories in the world. The Canadian Government and the Provincial Government have supported the efforts of private enterprise in every way possible, and with results which are generally satisfactory from all points of view. When I was in Alberta the Provincial Government were then controlling about a dozen creameries, which were in active operation, and, in addition to these, a number of non-Government creameries were also located in different parts of the province.

The "Jungle" revelations, which created such an intense

sensation throughout the United Kingdom with regard to oversea imports of food products, had a considerable effect upon British imports of all kinds of preserved provisions, but this, as it happened, was to the benefit of the Canadian cheese trade, which did well during last summer, and received an impetus that is likely to be well sustained. Canada assuredly experienced something of a scare during the latter end of last year, owing to drought considerations, but, as far as I have been able to gather, the cheese trade managed to grope through fairly comfortably, although not wholly satisfactorily, for at the end of September there was a decline of something approximating to 25 per cent. in Ontario production as compared with the results of the previous year.

Anyhow, in the London market the governing price for the best part of the season was 59s. 6d., as against 54s. during 1905. So that, taken on the whole, and duly weighing all the advantageous and disadvantageous circumstances, Canadian cheese sold better last year in London by anything from 5s. 3d. to 5s. 6d. or 5s. 9d. than was the case the year before. The other English provincial markets necessarily to some extent reflect the dominant market price, which does not ordinarily depart much from that which characterises the London market.

A great deal, of course, depends upon the methods of carriage. The iced-car service towards Montreal from various Canadian dairying centres is arranged by the Dairy Commissioner's Branch of the Department of Agriculture. This system covers, I believe, some sixty different routes, and in practical operation gives general satisfaction, notwithstanding that it has been in operation during a very recent period. But there are still numerous opportunities open for improvement. Many of the creameries, I am told, are defective in their cold-storage resources, and the conditions under which much of the butter has to be transported are not conducive to the best interests of Canadian butter industry. Nevertheless, I believe improvements are even now being introduced which will better the conditions of transport and shipment, and are calculated to reduce deterioration to a minimum—and, where butter is concerned, creamery experts say that deterioration commences almost at once. In dealing with butter, temperature is a prime consideration, and although practical butter-making operations have attained to a high degree of perfection, they have by no means yet reached finality.

The great difficulty to be faced in connection with the butter industry of Canada is with regard to questions of cold storage, good creameries and adequate preservation in transit to distant markets oversea or otherwise. In brief, the principal difficulty seems to resolve itself into one of temperature under varying

circumstances. In this connection I notice from an article in the *Montreal Gazette* that, so far as our home imports of Canadian butter are concerned, the facilities offered by the Surrey Commercial Dock Company at London have been much appreciated during the past season by the Canadian shippers of butter, but in these respects the ports of Liverpool and Glasgow lag behind.

To put it plainly, measly and mouldy butter, whether it comes from Canada or from Timbuctoo, will not meet the naturally, and very properly, somewhat fastidious taste of the British market. We must have it delivered at our breakfast and tea tables in perfect condition, or we shall not have it at all. If our Canadian friends consent to meet these requirements adequately, and they are not abnormal nor impossible of attainment, the reward, which Britishers would rather hand over to their own kinsmen than to foreigners, will be theirs.

CONCLUSIONS :

That the Dairying Industries of Canada, although already extensively developed, are in many Provinces still in comparative infancy.

That immense scope exists for Dairying Industry on a large commercial scale in the Western Provinces.

That Alberta in particular offers itself as a suitable centre for Dairy Farming and "Mixed Farming" operations, under modern conditions of capitalisation.

That nowhere in the world is the Dairying Industry carried on under more complete and scientific conditions than in Canada.

CHAPTER VI.

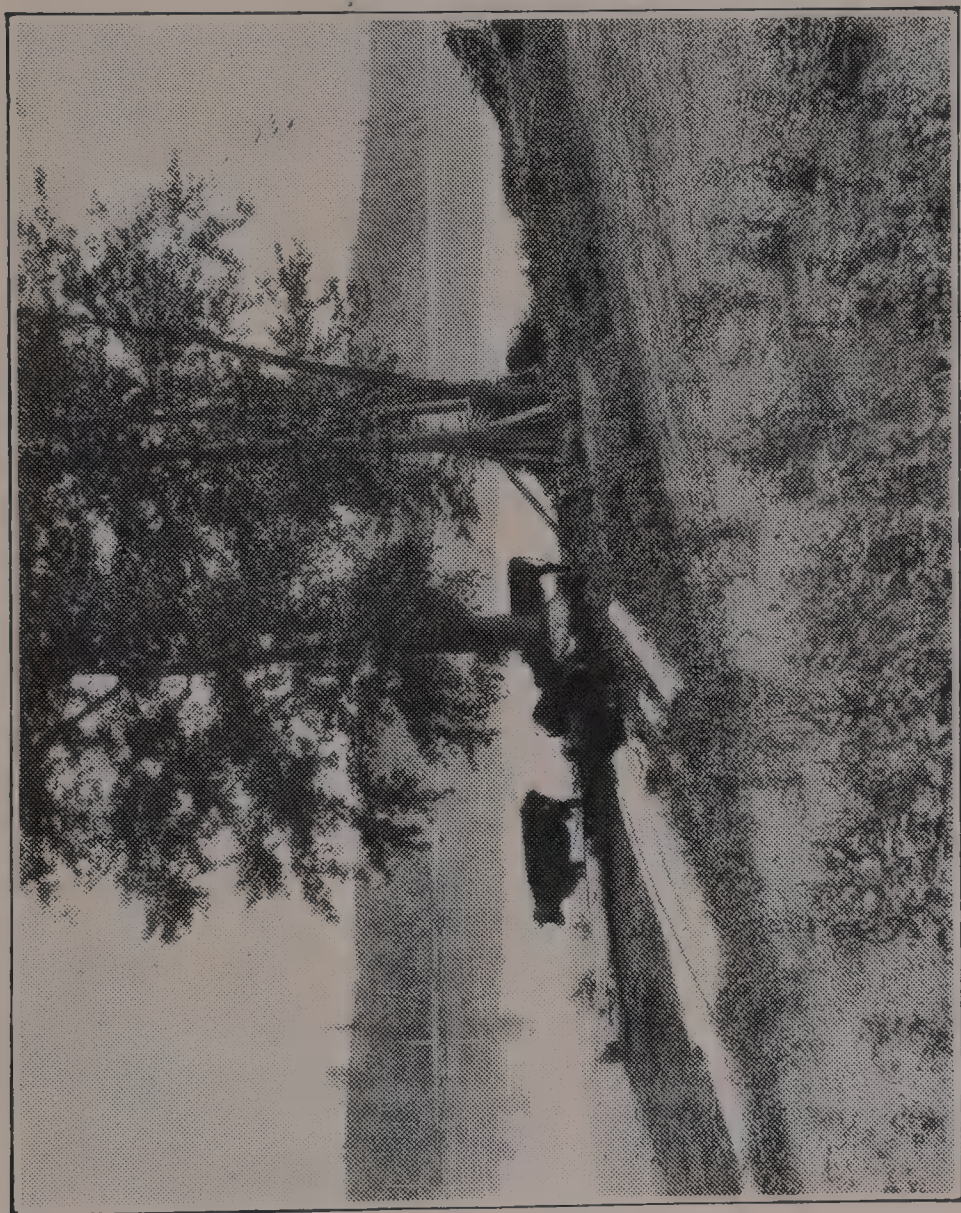
LIVE-STOCK FARMING.

STOCK FARMING IN THE MARITIME PROVINCES.—CHANGING CONDITIONS OF AGRICULTURE IN EASTERN CANADA.—STOCK FARMING IN QUEBEC AND ONTARIO.—SHEEP, SWINE, AND POULTRY FARMING.—PROSPECTS IN BRITISH COLUMBIA.—STOCK FARMING IN MANITOBA AND SASKATCHEWAN.

IN coming now to deal more particularly with the situation with regard to live-stock raising in its various forms throughout Canada, I find myself at the outset confronted with the fact that, while for many years past live-stock breeding has been an agricultural interest of great importance to the Dominion, there has been a good deal of change in the conditions under which the industry has been carried on in its varied ramifications throughout the different provinces during the past year or two. Notwithstanding those changes, and the fact that it has not wholly escaped those vicissitudes of fortune from which few branches of industry are wholly exempt, stock farming in its varied ramifications has continued to make continuous progress, and was never in a more prosperous and encouraging position throughout the Dominion as a whole than it is to-day.

I cannot, of course, in a chapter such as this, pretend to deal adequately with the whole breadth of my subject as it applies to all the provinces in the Dominion. I must content myself with dealing with the live-stock industry of most of the provinces in the briefest possible way, and enlarge in another chapter more particularly on the resources in this respect presented by the North-West, which under existing conditions present the greatest amount of scope and opportunity for its development on a modern commercial scale, calculated to attract the attention of the British investor. I shall first, therefore, deal briefly with my subject as it applies to the older provinces and then come to the more recent developments which the opening up of the North-West has rendered possible. And be it understood that I write as one who has seen and listened and not as an agricultural expert—as a chronicler and not as a critic.

There is not a province in the Dominion which is not in some special measure adapted to the successful prosecution of every



FARMING SCENE NEAR CALGARY.

branch of live-stock raising. In the older provinces years of activity in these connections have abundantly justified this claim. In Nova Scotia, New Brunswick and Prince Edward Island stock farming has long formed a staple element in their local agricultural activities. In Nova Scotia, cattle, sheep and hog raising developed rapidly, and it has now attained dimensions of importance, although there is no reason to assume that finality has yet been reached. Everything, indeed, points to the contrary, and my information is to the effect that there is plenty of scope for further advances. The raising of sheep has declined for some years, but the prospects, it seems, are all in favour of its being again resumed with vigour. Dairy farming has so greatly increased in the province that a large amount of care and attention is paid by farmers to the raising of first-class milch stock. Horse-breeding, too, is exciting increased interest in the province, and poultry farming is growing rapidly.

In New Brunswick mixed farming is most extensively carried on, and increased attention is being given to dairy farming, both of which facts point to another—that the raising of live-stock engages the activities of local agriculturists to quite as important an extent as does crop-growing. Then, in Prince Edward Island, a very large proportion of the population of which is engaged in bucolic pursuits, not only has dairy farming attained an increasingly-important place in the insular agriculture, but stock farming is rapidly taking a leading place. Horse-breeding, too, has latterly engaged much attention, and the extent to which poultry farming is carried on has enabled a considerable export trade in poultry and eggs to contribute to the commercial prosperity of the strenuous islanders.

In Quebec, the investigator finds that live-stock raising has long been recognised as an all-important branch of the agricultural activities carried on in the province. The vast areas of splendid pasturage with which it is endowed, and the heavy hay crops harvested year by year, offer of themselves every inducement and encouragement to the farmer to develop the raising of live-stock. Latterly stock farming in these provinces has suffered from the competition of the North-West Provinces, which have been able to place their live-stock in the market at prices with which it has been difficult for the farmers in the Eastern Provinces to compete successfully. Nevertheless, large numbers of cattle, sheep and swine are raised, and poultry farming is an industry of recognised importance.

Dairying industry is making rapid progress, and this consequently creates an inducement for the breeding of the best milch stock. Horse-breeding, too, is extensively carried on in certain districts, and with a large measure of success. In the last

Canadian Census returns the Province of Quebec was shown to stand second only to Ontario in the number of live-stock it possessed. Although the position has somewhat changed since these figures were taken, Quebec still maintains, I believe, its relative position amongst the provinces with regard to its possession of live-stock.

In Ontario, notwithstanding Western competition, stock farming maintains its position as a most important branch of the agricultural industry of the province. Certainly over a large area the conditions of farming have considerably changed, in view of the opening up of the North-Western Provinces. Like their British kinsmen, the older school of Ontario farmers were too conservative readily to fall in with the new order of things, and they suffered in consequence. But the Ontario farmer suffered more by Western competition in respect of his grain crops than of his stock. While mixed farming has long been popular amongst the farmers of Ontario, still it was so by choice or preference rather than by necessity, and those of them who were engaged in mixed farming were less severely hit when the grain boom of the West came along than were their brother agriculturists who depended mainly or exclusively on their grain crops for their living.

Under the new order of things the situation has at length been more or less frankly accepted, and many of the farmers no longer look upon the raising of wheat and barley crops as their chief business—indeed, it is sometimes said that some of them grow them mainly for their straw. They look rather to their hay crops, which are usually magnificent, and to the rich pasturage, which gives such splendid results when applied to the raising of stock and dairy products. Fruit growing, too, has become an important adjunct to farming operations in Ontario, and poultry farming is accounted amongst the most profitable and successful branches of live-stock rearing in the province. The raising of hogs also receives the farmer's most careful attention, and his well-fed Tamworths and Berkshires of the best strains produce splendid bacon and pork, and fetch the highest prices when the market is favourable.

As a matter of fact, when the Ontario farmer puts his hand seriously to stock-raising, he can produce some of the best beef which Canada can boast, and with his own pedigree stock he succeeds not infrequently in carrying off prizes and distinctions, not only at exhibitions and shows in his own Ontario, but further afield, in the United States, much to the chagrin of his American competitors, who have to content themselves with lower prices than the Canadian cattle will fetch. They also raise some splendid mutton in Ontario, chiefly from Shropshires and sheep descended

from Welsh progenitors. Besides, Ontario has made its mark in the matter of horse-breeding, and this industry has in some districts attained most extensive dimensions. When the last Census figures were tabulated, Ontario stood first of all the Canadian provinces in the possession of live-stock. In some respects, at least, these figures must now be somewhat modified, but, probably, Ontario still adequately maintains its ascendancy in its possession of the largest quantity of all-round live-stock in the Dominion.

In that part of the province known as New Ontario—that is, the Western region—and also in the Wabigoon River country, which, as I stated in a previous chapter, is being rapidly opened up, there is a great scope for stock farming of all sorts. In the Wabigoon River district there are approximately 2,000,000 acres of agricultural land readily clearable, and in a special measure adapted to mixed farming. No doubt this region will before long appeal to large numbers of agricultural settlers, and materially contribute to the prosperity of the live-stock raising and mixed-farming interests of Ontario. Then, again, in the Algoma district, of which Sault Ste. Marie is the natural centre, immense areas of agricultural land are available suitable for stock-raising purposes. So that, far from having exhausted its resources in the particulars mentioned, Ontario has yet at its disposal great future potentialities, of which, with the enterprise which has so long characterised its agricultural population, it is hardly conceivable it will be slow to take advantage.

British Columbia—that vast Pacific Coast region, at once the most picturesque and one of the most interesting and delightful in the Dominion—will probably be generally regarded as the least important province in Canada from a strictly stock-farming point of view. This is mainly due to the extraordinary physical characteristics of the country, which may truly be described, like “Caledonia, stern and wild,” as a “land of the mountain and the flood.” Nevertheless, the country is so vast, possessing as it does within its boundaries no less than 382,000 square miles, that, although the larger proportion of its area is not amenable to any branch of agricultural industry, there are still vast stretches of the most fertile land, raising heavy grain and root crops and offering the best of grazing grounds.

It is, therefore, a mistake to assume, as is often done, that Agriculture generally, and stock farming in particular, are negligible quantities in the province. On the contrary, the raising of cattle, sheep and swine in several districts is carried on upon an extensive scale, and some of the finest ranches in the Dominion are to be found within the limits of the province. The Kamloops country is not the only district which can show

big things in this way, and Lord Aberdeen's ranch in the Coldstream Valley, miles of which it occupies, is one of the show places of British Columbia. All sorts of marketable live-stock are raised there in accordance with the best practice and the most economical methods. Several other branches of farming are also carried on, chief amongst them being the growing of various grain crops and hops on an extensive scale; but perhaps the industry for which it is mostly known to fame is fruit-growing, which is there reduced to something like an exact science. I need only add that mixed and dairy farming are being increasingly practised in the province, and many fine dairy herds are to be seen fattening on the rich pastures of the fertile valleys as one rushes through the country on board one of the Canadian Pacific expresses.

In coming now to the North-Western Provinces, I propose to deal with Manitoba and Saskatchewan first. When Manitoba was first settled, stock farming became its principal agricultural interest. When, however, the remarkable fertility of the soil for the raising of grain crops, and wheat in particular, became adequately appreciated, stock farming diminished in importance, and gave way to grain cultivation on a huge scale. The land, it was thought, was too valuable to remain undisturbed by the influence of the plough, and so the stock farmers had either to move further west, to Saskatchewan or Alberta, or relinquish stock farming in favour of grain cultivation; or, as a third alternative, divide their interest between the two forms of bucolic activity and engage in mixed farming. This was accentuated when the great extent of the Grain Belt of the West was realised; and so it came about that Alberta, of which previously little had been known, became the great ranching province of the Dominion. This almost enforced exodus of the stock-farmers of Manitoba, and subsequently of those of certain districts of Saskatchewan, was vigorously resisted by them, but they had to yield to the seemingly inevitable.

At the same time, stock farming is still an interest of importance in the two provinces, and proves a very profitable one, owing to the demands of the local market, apart from shipping requirements. Some 80,000 head of cattle are required each year for local consumption, and the young cattle are readily bought up by ranchers and sent westwards to Alberta. Both in Northern and Southern Saskatchewan vast tracts of hay lands present themselves, and are capable of maintaining huge herds. Rich pasture lands abound in the North, and water is plentiful. Horses stand the winter outdoor well, but cattle and sheep in Manitoba and Saskatchewan have to be sheltered and fed during the severe months.

The Manitoba farmers find Winnipeg a convenient centre for distribution, for the city possesses stockyards of immense size, and very extensive abattoirs for slaughtering the cattle and chilling the meat for shipment to the European and other markets. The yards of the Canadian Pacific Railway at Winnipeg, covering as they do some 120 miles of track, are the largest in the world! I note, by the way, in a recently-received issue of the *Edmonton Free Press*, that one firm—Messrs. Gordon, Ironsides and Fares, of Winnipeg—beat the whole world's record last year in the export of cattle. During 1906 they shipped no less than 73,000 head of cattle and 41,000 sheep. Of these, 50,000 cattle hailed from the ranches of Alberta and the stock farms of Saskatchewan, with a few from Manitoba, and the remainder from Western Ontario, all the sheep coming from the last named.

Leaving the subject of cattle and horse ranching in Alberta—the great coming centre of that interest in Canada—for another chapter, I would like to add here that as the traveller passes through the stock-farming districts of Quebec and Ontario, and away further west through the vast rolling prairie lands of Manitoba, Saskatchewan and Alberta, nothing is more surprising than the familiar aspect which so many of the cattle present. The buffalo, of course, does not count; he is practically extinct. The enterprising stock farmers and ranchers are no longer content with all sorts of mongrel herds, but have imported from this country splendid specimens of our best breeds of cattle, many of them bought at fancy prices, from which to raise their stocks. Thus it is that one finds almost everywhere the familiar English shorthorn, especially in Ontario, where it is extensively bred for beef. So, too, there are the aggressive-looking Aberdeens and Galloways, while Herefords and representatives of other leading breeds are common. American types are also seen, and the Texas longhorn, or some bovine species very much like him, is frequently to be seen in the Western stockyards. Of course, the cattle are bred on scientific lines, necessitating in many cases judicious crossings, so that not infrequently a non-expert, like myself, is apt to be puzzled as to what sort of a bovine pedigree a given animal possesses. On the other hand in other instances it is as easy to guess as in an English farmyard.

The Canadian dairy farmers believe in the good old Holstein, whose mottled black-and-white bodies have been familiar to us all from the days of our childhood's picture books. Ayrshires, too, are in great request for dairying purposes, and occasionally one happens upon a Devon and something which, indisputably, has Jersey or Guernsey blood in it. Then, again, as regards the sheep the Shropshires seem first favourites, and these are crossed with other breeds, sometimes with the merino, with the best

results. The hog farmers swear by their Tamworths and Berkshires, their Yorkshires and their "whites," and when crossed with other breeds unfamiliar to the British agriculturist the results are usually satisfactory, alike to the farmer and the consumer. After all, although so far from home, the familiar contours of so many of the stock suggest that, even in the Far West, one is among one's own kinsmen.

CONCLUSIONS :

That the Live-stock Farming interests of Canada represent one of the most important and progressive branches of Agriculture in the Dominion.

That, notwithstanding the competition of the North-Western Provinces, there is still great scope for the development of Stock Farming in the Eastern and Maritime Provinces, and especially in Western Ontario.

That the practical success which the stock farmers of Eastern Canada have achieved in competition sufficiently proclaims the vitality their branch of agricultural industry possesses.

That if Mixed and Dairy Farming be judiciously cultivated, the future of Agriculture in Eastern Canada, and in Manitoba and Saskatchewan, is, apart from crop farming, fully assured.

CHAPTER VII.

CATTLE AND HORSE RANCHING IN ALBERTA.

THE GENESIS OF CATTLE RANCHING IN ALBERTA.—CALGARY AS A CENTRE OF THE LIVE-STOCK AND MEAT INTERESTS OF NORTHERN ALBERTA.—STOCK-RAISING IN THE EDMONTON DISTRICT.—HORSE-BREEDING IN NORTHERN ALBERTA.—HOG-BREEDING AND POULTRY-FARMING.—THE CANADIAN EXPORT TRADE IN LIVE-STOCK AND MEAT.—THE FUTURE OF RANCHING AND LIVE-STOCK FARMING IN ALBERTA.

I HAVE already in the previous chapter dealt with the live-stock farming interests of all the Canadian provinces with the exception of Alberta, which is the chief field for cattle or horse raising in the Dominion, and the province which presents the greatest possibilities in this direction for the future. I now propose to devote this chapter mainly to a consideration of the present position and prospects of Alberta in this connection. For it is to Alberta that the investigator must direct his way if he desires to see Canadian live-stock farming and cattle and horse ranching in their highest developments.

Although the greatness of the province as a live-stock raising country remains with the future, the province has had a much longer past in that connection than even many of those familiar with Canadian history are aware. I was surprised, for instance, to be told that the beginning of ranching in Alberta may be said to date from as long ago as 1873, when a body of the North-West Mounted Police, under the late Lord MacLeod, then an officer of the Police, and after whom Fort McLeod has been named, was sent to reclaim that part of the Canadian territory from the Indians and the buffalo, taking with them a small herd of cattle to provide beef for their daily rations. It was not, however, until three years later that breeding stock were introduced into the district, a small herd having been brought in from Sun River, Montana, and sold to a speculative mounted policeman, who, however, having no ranch, turned the strangers loose upon the prairies to take their chance against all sorts of dangers from the aboriginal buffalo, the savage redskin, the no less aggressive wolves, and the all-absorbing prairie fires. It is stated, however, that

they all turned up on the first spring "round-up," which seems a remarkable circumstance to anyone who sees, as I did, the boundless prairie, even as it is to-day, for the first time.

After this events moved more rapidly. In 1878 the Indian Department introduced 800 head of breeding stock, and in 1881 the Walrond Ranch was started. After this numerous ranching companies were formed, and established more or less extensive ranches throughout the Calgary region. The vast prairies certainly afforded resources enough for all comers, with countless acres to spare. It has, indeed, been credibly estimated that the grazing land comprises something like 195 million acres, while it has been computed that, according to the number of cattle, horses and sheep raised, there is still an average of 195 acres for each animal. How far these figures may be absolutely relied upon I am not in a position to state, but publicity has been given to them under the auspices of the Canadian Ministry of the Interior, so they may be regarded as not being without authority.

As matters stand now, Calgary has become an important centre not only of the live-stock interests of Northern Alberta but of its meat trade. The huge abattoirs associated with the mammoth business with which the name, familiar all over the West, of "Pat Burns" is identified have facilities for dealing with some 200 cattle, 1,000 sheep and 600 hogs daily, while the cold-storage plant can deal with 5,000 carcasses of beef, 10,000 sheep and 6,000 hogs, not to speak of all sorts of poultry in enormous quantities. It is nothing uncommon, I am given to understand, for a consignment of meat to Vancouver, Yukon, or some other Western centre, to require a whole train to accommodate it. Messrs. P. Burns and Co. also own extensive ranching interests in Alberta, and have established meat markets all over Alberta, British Columbia and Yukon. I particularise this company because it is typically representative of the extent to which the live-stock and dead-meat trades of the West have already developed, but there are other concerns whose names might also well be mentioned did considerations of space permit.

Another region renowned for its stock-raising capabilities is the district round about Edmonton. The summer pastures here are remarkably rich, offering splendid feed for countless live-stock. The heavy hay crops, too, are another valuable asset for the stock farmer, while the absence of extreme heat in summer, with comparative freedom from mosquitos and other pests, the easy winters and the abundant water render it in many respects an ideal country for cattle and horse raising and also for sheep and dairy farming. Sheep flourish amazingly on the thousands of acres of rich, well-watered grass lands, and produce splendid mutton, while their wool reaches the local mills in excellent

condition. Of such a superior character is the stock raised in the Edmonton district that a large proportion of the prizes for cattle offered at the yearly shows and fairs at Winnipeg and other Western towns are, I was told, carried off by local stock-breeders. Milking cows and calves are ordinarily kept under shelter during the winter months, but the heifers do well in the open, even during the severest weather.

Another speciality of Northern Alberta is horse-breeding, and the Alberta horse is now known far and wide for the excellent health it maintains, its abundant lung-power, and its dogged endurance under hard-working conditions. One, indeed, might expect such a result as this, not only from the fine feeding resources which Northern Alberta possesses, but from the careful and, indeed, scientific manner in which the breeding is carried on. The young Alberta horse has strains of some of the finest equine blood which the world supplies. Clydesdale sires have been imported from Scotland, percherons from France, and some of the best trotting stock from the United States, while the finest thoroughbred blood which Great Britain and Kentucky can supply is represented to-day in the horse ranches of Northern Alberta. The result is that there is a great demand for these horses, and they make high prices, Clydesdale and Shire three-year-olds fetching readily anything from 90 to 125 dollars a head. There is evidently a great future in store for horse-breeding in Alberta.

Then, again, hog-breeding is making great progress in this region, and there is no branch of stock-raising for which there is more scope. At present Western Canada cannot anything like keep pace with the demand, for, indeed, the provinces do not produce one-half the pork which they themselves consume; and yet some Western bacon finds its way to distant markets, and even to shipping ports for export! Again, Alberta has splendid scope for poultry farming. There is a great demand for eggs, and they fetch high prices. The supply of fowls, too, does not anything like cope with the local consumption, and the geese and turkeys which can be raised in the district are unsurpassed for quality.

Game is also found in abundance throughout Alberta, and large quantities find their way to market, although here, again, there is immense scope for developing a larger trade. Wild duck, blue grouse, partridge, prairie chicken, snipe and many other kinds of game are to be bagged in abundance, while bigger game, such as deer, moose and antelope, are far from being extinct.

These remarks apply mainly to Northern Alberta, but they are almost equally applicable to Southern Alberta, where, however, the climatic conditions are less strenuous; indeed, in "Sunny Alberta," as I mentioned in a previous chapter, the live-stock

range at will all through the winter without shelter, finding their own food, except for the fact that wild hay is stacked for them for their use when a sharp frost follows a thaw. The ranches comprise variously from 1,000 to 20,000 acres, and are usually covered with coarse prairie grass. The ranchers ordinarily have twenty-four rounds-up in the course of a year, and it was one of the regrets of my trip that I was unable to witness the excitements of a "round-up," one of the most picturesque functions which the great West can present to a visitor from the East. All the cattle are branded, and the brands, of which there are more than 20,000, registered. When one rancher finds himself in possession of stock belonging to another, the proper owner is duly notified, and arrangements mutually made for the return of the wanderers.

Although the rapidly-increasing population of Canada affords an extensive market for the produce of Canadian farms, still, so far as the live-stock-raising industry is concerned, the Canadians look mainly to the export trade for its development. And a large and increasing export trade it is what the official figures present. In 1905 cattle were exported from Canada to the value of 11,360,969 dollars; horses, 450,900 dollars; hogs, 41,289 dollars; sheep, 1,400,710 dollars; live poultry, 66,067 dollars; bacon, 12,194,458 dollars; hams, 321,501 dollars; beef, 92,326 dollars; mutton, 10,509 dollars; pork, 188,194 dollars; poultry and game, 115,807 dollars; tongues, 4,046 dollars; and canned and preserved meats, 3,538,976 dollars. This last item will probably show a considerable reduction for 1906, in view of the "Jungle" exposures, which, though not applicable to Canadian produce, must necessarily have affected the demand.

Then I find on reference to our own Board of Trade returns that, of the Canadian exports of cattle, this country imported in 1906 160,689 head, valued at £2,765,440; of Canadian sheep and lambs we imported 14,296 head, valued at £22,228; and of horses 225, valued at £10,882. In the matter of meat, we imported last year 1,190,524 cwts. of Canadian bacon, valued at £3,135,391; 254,494 cwts. of hams, valued at £674,469; and of eggs, 231,719 gt. hunds., valued at £106,393. So far as this country is concerned, there is a great market for Canadian cattle and sheep, as well as bacon, hams and eggs, for, while in the matter of cattle and sheep we draw principally upon Canada and the United States for our supplies for food purposes, the United States far surpasses Canada as yet in the numbers it sends us. The same remarks apply to the quantities of bacon and hams imported.

There is, moreover, a great market here for Canadian eggs if our Colonial friends would cultivate it vigorously. In 1906 we

imported eggs to the value of £7,098,137, to which amount Canada only contributed £106,393. Our principal sources of supply are Russia and Denmark, with Germany, Belgium and France and one or two other countries following in the order mentioned, but Russia supplied us with eggs to the value of no less than £2,344,256. We in this country would rather consume Canadian eggs than Russian ones, all things being equal, and they ought to reach this country in quite as good condition, although, to be sure, we should not regard them as on the same plane as our own native "new laid"—when we get them. Altogether, Canada will find in this country an egg market worth vigorous cultivation. This would tend to the expansion of her poultry-farming and live-stock-raising industries, which in turn would attract British capital.

As a last word I would say that the impression I got of ranching and live-stock raising on a large scale during my Canadian trip was that this particular interest in Canadian Agriculture has a great future before it, especially in the North-Western Provinces. The older provinces are very far indeed from being played out in this respect, but the competition they will have to meet from the West will probably be increasingly great in the future. Again, ranching is becoming thoroughly commercialised. It is no longer a mere aspect of sport, and an excuse for a picturesque form of "roughing it." Here, too, let me say that the cowboy of romance is nearly as extinct as the buffalo. He is the exception rather than the rule, as far as I could see, in the West, at all events on the Canadian side of the International boundary—although, to be sure, the cowboy hat is common enough out West, and out in the open it is far and away the most suitable headgear. The cowboy, as such, lives now mainly in third-rate melodrama and the pages of boys' serials. His lineal successor is more businesslike in his ways and his habits, and he dresses with less tendency towards the eccentric and spectacular than in the old days.

I am afraid, too, that live-stock raising in the North-West in the future will, as time goes on, become more and more a matter for exploitation by large companies, well capitalised. The prospects are such that there seems to be no reason why there should not be abundant inducement offered for the attraction of British capital. But all such attempts will have to be based on a recognition of the fact that the British investor requires more than plausible tales of prospective potentialities, bristling with promises of certain dividends to come. The live-stock industry of the West promises to be a great one, and it will be the fault of the Alberta people if it does not develop into one of the most valuable instruments in the building up of the future prosperity of Canada.

CONCLUSIONS :

That Alberta is the greatest present and prospective field for Cattle and Horse Ranching and Live-stock Farming generally in Canada.

That its resources in these particulars are practically inexhaustible.

That they add a further source of wealth to the otherwise remarkable industrial potentialities of the Province.

That if developments in Ranching and Stock Farming in Alberta are wisely directed on a large commercial scale, they are likely at a later period to attract British investors, if the projects are properly introduced under unquestionable auspices.

CHAPTER VIII.

THE CANADIAN FRUIT-GROWING INDUSTRY.

CANADA AS A FRUIT-GROWING COUNTRY.—FRUIT-FARMING IN EASTERN CANADA.—THE MAPLE SUGAR INDUSTRY.—FRUIT-GROWING IN BRITISH COLUMBIA.—THE OUTLOOK FOR THE FUTURE.—CANADIAN FRUIT EXPORTS.

AT the first blush some objection may be taken to my dealing with fruit-growing under an agricultural classification, but in this particular matters shape themselves a little differently in Canada from what they do with ourselves. Strictly speaking, fruit culture is essentially a branch of agriculture, but on this side we are hardly accustomed to look upon it in that light. Fruit with us is so much of a garden crop that we can hardly realise it being carried on on a huge commercial scale as a branch of agriculture. Such, nevertheless, is the case in Canada, where, apart from garden methods of growing, there are in existence huge fruit ranches and farms which are quite unlike anything to be seen on this side of the Atlantic.

Market gardening, as such pure and simple, and as it is familiar to us, is hardly known on the other side, the growing of fruit being essentially a branch of farming proper. Indeed, it might be regarded as a component part of mixed farming, because many farmers, more especially in the older provinces, where competition is keen, combine grain and root crop cultivation with stock-raising, dairy-farming and fruit-growing, and many of them make an excellent thing of it. But, apart from all that, fruit-growing has become a recognised industry in Canada, and many of the fruit ranches and farms are, as I have said, planned on a scale which is wholly beyond anything that is attempted in Europe.

So many persons of a limited range of knowledge associate Canada with little else than snowshoes and eternal blizzards that it comes as a surprise to them, and to many more, to learn that the climate of the Dominion is such as to enable the Colony to take a very high place amongst the leading fruit-producing countries in the world, and in this respect it is only yet in its infancy. Fruit cultivation in Canada is, indeed, fast assuming

a position of first-class industrial importance, both as a self-contained branch of commercial activity and as a profitable branch of, or auxiliary to, Agriculture proper.

The immense advances made by the apple crop are largely due to the increased export demand for the fruit, which has an excellent reputation in the European markets. The increase in grape production is also a feature of significance, for it points to increased industrial possibilities in several directions, particularly in the production of wines.

Considerations of space prevent me dealing more than briefly with the question of fruit-growing in the various Canadian provinces individually, for the subject, like the vast territory to which it has special reference, is a very wide one, and invites discursiveness. Quantitatively, the principal fruit-growing province of the Dominion is Ontario. This will probably come as a surprise to many, for the popular notion on this side, so far as there can be said to be any popular notion on the subject at all, is that British Columbia holds premier place as the fruit-growing region of Canada. In one sense this may be said to be the case, but not, I believe, in the quantitative sense is it so just yet.

From official authority, it seems that the apple crop of Ontario in the last Census year amounted to as many as 13,631,264 bushels, and the grape harvest to 23,156,478 lbs. It had also the heaviest peach, plum and small fruit crops for the year in the Dominion. Of the apples large quantities are barrelled and canned for export, and evaporated, dried and otherwise preserved for home consumption and export. Cider, too, is an important product of the apple crop, a considerable quantity being exported.

I was greatly struck when I was in Ontario with the appearance and equipment of some of the orchards and vineyards, set, as many of them are, amidst beautiful surroundings, reminding one sometimes of Kent, and again of Devonshire and other fruit-growing districts of England. But in Ontario the fruit farms and orchards are planned on more ambitious lines. Many of them are self-contained industries ; with us how few are anything more than mere individual businesses ?

Another important fruit-growing province is Nova Scotia, which, though the most easterly of the Canadian provinces, and thus exposed to all the inclemency for which the Atlantic can be responsible when it chooses, has been remarkably successful as a contributor to the sum total of Canadian fruit production. Fruit-farming in Nova Scotia is carried on largely in conjunction with grain and root crop farming, dairying and stock-raising. Apple and berry crops are very successfully raised. Cranberries do especially well, giving a result sometimes of forty barrels to the

acre, which is remarkable. They are shipped in considerable quantities to the London market.

The adjoining Province of New Brunswick makes a good showing in fruit production on a smaller scale, apples and small fruit being the principal crops. Prince Edward Island also has its apple and cherry orchards—cherries being a crop in which the island excels. The Province of Quebec comes quantitatively second after Ontario as a fruit-producer, and there, as in her sister province, fruit is cultivated for the most part on an industrial scale and on scientific lines. The principal crop is apples. Quebec, too, usually does well in plum cultivation. Small fruit flourishes abundantly, cherries sometimes yielding a prolific return.

Western Canada—that is, Manitoba, Saskatchewan and Alberta—had not up to 1901 made much showing in the matter of fruit cultivation, but considerable advances have been made since then, and there are present all the elements calculated to promote the development of fruit-growing on a commercial scale, within those limitations which are prescribed by climatic influences, at no distant date. There are not wanting those who are enthusiastic as to the possibilities of Manitoba as an apple-growing country, while crab-apples and plums have been successfully grown in that province for years past, and they are now being grown both in Saskatchewan and Alberta. When I was in Alberta I heard that various fruit-growing experiments had given encouraging results.

The maple-sugar industry is so closely allied to fruit-culture that some reference to it may, perhaps, properly be included at this stage. The maple, I need hardly remind my readers, is the emblem of Canadian nationality, and the handsome tree grows in most parts of the Dominion, although the climatic conditions in some districts are not so conducive to its highest development as they are in others—and it should be remembered that the maple tree is decorative as well as useful from an industrial point of view. Probably in no part of the Dominion does the maple grow to such perfection as in the Province of Quebec, where the special meteorological conditions which prevail in spring enable it to acquire those qualities which go to produce the maple sap, which is utilised for conversion into maple sugar. It seems that what the tree requires to produce the sap to perfection are frosty nights and a rising temperature during the day. This is just the sort of weather which characterises Eastern Quebec during the months of March and April, and consequently the cultivation of the maple receives assiduous attention in the province and forms quite a feature of the agricultural operations carried on there, and more particularly in the eastern townships.

In that district the average farmer who goes in for maple cultivation will have anything from four or five hundred to a thousand or more maple trees on his farm, although, of course, there are many farms which can boast several thousand trees available for maple sugar production, while, on the other hand, some of the smaller holdings can only boast a correspondingly small number of trees. I saw it stated in a recent number of the Sherborne (Quebec) *Daily Record* that the average yield of sugar is from two to three pounds per tree, according to the season, and it is calculated that ten quarts of sap will produce about a pound of sugar, the market price of which has latterly been about eight cents per pound, more or less, according to the quality of the sugar. It seems that the demand for maple syrup has become so great that many farmers dispose of practically the whole of their output in this form, and where the farmer has a reputation for making first-class syrup, it is more profitable for him to dispose of his product in this form than as sugar.

The difference between the syrup and the sugar is that the former is removed from the pan when it reaches a temperature of 220 degrees Fahrenheit, and remains in liquid form, whereas for sugar the boiling is continued until 235 degrees are reached, when it is removed, and, after cooling, solidifies. A great advance has taken place of recent years in the process of maple-sugar manufacture, and the primitive methods which were formerly employed have given place to a more scientific system. The old-time wooden spile at the tree and the wooden trough to receive the sap gave place to a tin spout and a wooden bucket, and these in turn have been superseded by an iron spout and a tin bucket. So, too, the iron kettle formerly used for boiling purposes was replaced by the tin pan, which in due course was superseded by the modern sugarmaker's evaporator; and so one finds to-day that the sap, after it leaves the tree, comes no more in contact with wood in the course of its transformation into syrup or sugar, even the hauling tubs and the storage tanks being made of tin and zinc. All of this goes to promote the purity and good quality of the product, and enables it to fetch the highest prices in the market, to the consequent benefit of the farmer.

According to the newspaper I have just quoted, the maple-sugar season occurs, in the Eastern Townships, at a most convenient time of the year, just when other farming operations are not pressing. "Winter is passing, and Spring is at hand. The snow is disappearing. The land is not ready for the plough or harrow, or to receive the seed. Here are three or four weeks when the farmer is entirely free for some special money-making job. 'Sugaring' is the opportunity. There is probably no

other time in the year when he can make money so quickly." Evidently there is money in maple sugar, and it seems to be odd that more of it is not made by Canadian farmers through the medium of maple cultivation, as an auxiliary to ordinary agricultural operations, than is the case.

Although, as I have already explained, British Columbia cannot yet equal Ontario quantitatively as a fruit producer, it is the province to which probably most progressive Canadians look as the great future fruit-producing region of the Dominion. No province in the Dominion has made such rapid progress in all that pertains to fruit-growing and fruit preservation and packing as British Columbia, even though she has had—and very wisely, too—to profit by the experience of her sister provinces. All tangible evidences seem to point to British Columbia being one of the world's greatest coming fruit-producing countries, requiring only wisely-directed enterprise and ample capital to secure the realisation of her ambitions in this particular.

Londoners recently had an object lesson in this connection, when the splendid exhibit of British Columbian apples at the Horticultural Hall gave some indication of the province's capabilities in practical pomology. The exhibit, it may be remembered, was sub-divided—part was sent by the Provincial Government and part by individual fruit-growers. It was as fine a collection of apples as ever was brought together: the condition, the colouring, the perfume, the growing—all were as nearly perfection, I should think, as can be hoped to be attained. Some were the produce of irrigated land, and some of unirrigated, and the collection had been transported under cool storage conditions at a temperature of about 38 degrees, being shipped direct from Quebec to Liverpool. The whole was a triumph alike for the growers and for those responsible for the transport.

The fruit-growing districts of British Columbia are very numerous, and most of them, when properly cultivated, adequately reward the fruit farmer. Probably the fertile valley of the Okanagan surpasses most of the other districts, and from what I have heard and seen I should say it would be hard for its produce in fruit to be equalled or surpassed. It is here that Lord Aberdeen acquired a ranch—the now famous Coldstream Ranch, to which I have previously made reference, and which is one of the finest of its kind on the American Continent. It occupies some miles of Coldstream Valley, and is fringed with rich, sloping pasture lands. Apple culture is, perhaps, the fruit-growing feature *par excellence* of this ranch, and the orchards are, I believe, the largest in British Columbia, which is saying a great deal. They are superbly organised and maintained. The long, straight ranges of fruit trees—row upon row interminably, it almost

seems—might be likened in their disciplined regularity and clean-cut formation to a regiment of Guards in review order. Other sorts of fruit, of course, besides apples are cultivated, as are also hops and various grain crops ; but it is a polyglot sort of ranch, the Coldstream, and, as I remarked in an earlier chapter, it takes in the raising of cattle, sheep, pigs and poultry, as well as fruit and agricultural crops. It covers some 13,000 acres, and is a model ranch in every sense of the term.

It seems odd that the example set by one Governor-General in the matter of ranching should be followed by another, but when Earl Grey visited British Columbia, and saw what he saw, he was not slow to follow Lord Aberdeen's example. He purchased a fruit ranch at Kootenay Lake, abutting upon which it has a frontage, I am told, of about 1,400 feet. The ranch covers about 54 acres, and 15 are under cultivation and planted with fruit trees. The situation is superb, and the district rich in game, while rainbow trout are caught from the lake in goodly numbers—quite an ideal ranch, situated in one of the finest fruit-growing districts in the world.

The returns for the province for 1906 as to agricultural and other produce are not yet available, but the fruit industry of British Columbia is known to have made immense advances, and one estimate, I see, allows for an increase at the rate of 25 per cent. upon the results of 1905. If that should be anything near the mark it will mean that the fruit and dairy industries of the province together, as they are intimately associated, will have yielded something like 8,000,000 dollars for 1906. Moreover, from all the inquiries I made, and from information that has otherwise reached me, it seems to me that, given a wise discrimination in the selection of properties and judicious commercial methods, the future of British Columbia as a fruit-growing country is assured. Already there is a good deal of British capital associated with fruit enterprises in the province, and the example of Lord Aberdeen, followed, as it has been, by Earl Grey, exercises an encouraging and stimulating influence.

There is no reason in the world why the British investor should fight shy of "a really good thing" in British Columbian fruit-growing, any more than in mining, wood-pulp, lumber, salmon-canning or any other enterprise in that province. But it is the Colonist, who is on the spot, who must take the initiative and show the way. Much, of course, depends upon the shaping of the export demand for British Columbian fruit produce, or, for that matter, upon the course of the fruit exports of Canada generally. As far as can be ascertained the export outlook for British Columbia is favourable, especially in view of the increasing value of the new markets in the Far East, but in the

absence of specific figures it is difficult to gauge the situation absolutely.

The more one looks into the question of commercial fruit culture in Canada, especially if one is able to do so in the light of a personal visit, which enables a certain amount of investigation to be made on the spot, or, in some circumstances, very near it, the more one becomes convinced of its potentiality as one more of those numerous factors, of which Canada has such a rich endowment, which make for prosperity. It is in her wealth of natural resources that Canada is so supremely blest, and her inexhaustible capacity for fruit production is not the least of these.

CONCLUSIONS :

That Fruit Growing on a commercial basis in Canada has assumed a position of first-class importance.

That ample scope for remunerative developments in Fruit Farming presents itself practically all over the Dominion.

That the future of British Columbia as a great fruit-growing country seems secure.

That the examples of Lord Aberdeen and Earl Grey in purchasing large fruit ranches in British Columbia have had a reassuring influence.

That British capital will readily support really well-balanced schemes for fruit growing and packing in Canada which can show tangible evidences of remunerative prospects, and are transparently free from all specious and objectionable features.

CHAPTER IX.

IRRIGATION IN WESTERN CANADA.

IRRIGATION IN ITS APPLICATION TO AGRICULTURE.—IRRIGATION IN “SUNNY ALBERTA.”—THE CANADIAN PACIFIC RAILWAY COMPANY’S GREAT IRRIGATION ENTERPRISE.—HOW THE PROJECT HAS BEEN REALISED.—THE CANADIAN IRRIGATION LAWS.—IRRIGATION ALWAYS AN AID TO AGRICULTURE.

IRRIGATION in its application to Agriculture must, in its primitive form, be regarded as being amongst the oldest adaptations of engineering to industrial purposes. In a rudimentary sense it would signify the construction of crude ditches or gullies in order to convey water from streams, or other sources of supply, to the growing crops of the husbandmen of remote times. But, under the influence of a progressive civilisation, the principle of irrigation has been so immensely developed in later times that it now represents a branch of engineering which has won for Agriculture, even under the most unpropitious conditions, the most brilliant industrial and financial results.

In India, in the United States, in Egypt, and in other parts of the world, irrigation schemes on the most gigantic scale have been successfully carried out, and have more than justified their existence ; but it has remained for Western Canada to present one of the most complete and effective applications of the principle of irrigation to agricultural development which the world has yet seen, and it ranks, to say the least, as the greatest irrigation work on the American Continent. Its inception and realisation—although the undertaking is not yet completed—are due to the amazing enterprise and pioneering foresight of the Canadian Pacific Railway Company, which has proved itself, by the adoption of a strenuous and successful administrative policy, to be an empire-building railway in the most comprehensive sense of the term.

I have already incidentally mentioned the existence of various irrigation works and schemes in Western Canada, and these exercise so potent an influence in getting out of the agricultural land all that is obtainable under the most satisfactory conditions—not only as respects crop-farming, but in the provision

of watering facilities in connection with live-stock raising and dairying—that I have thought it well to devote a chapter especially to an account of a representative Western irrigation undertaking, so as to convey to the minds of my readers on this side of the Atlantic some idea of what is being done in our portion of the other side to develop our great heritage of natural resources for all they are worth.

It was impossible for me, of course, during my trip through Canada to inspect or investigate the operation of all the various irrigation works which present themselves throughout the Dominion, but, as the principle and practice of irrigation find their highest development in Western Canada, I naturally selected an undertaking in that region. That of the Canadian Pacific Railway is in this connection so overwhelmingly predominant, alike in its extent and potentialities, that it would be almost absurd to ignore it or fail to deal with it in such a work as this as representing the very last word in irrigation as applicable to Canadian agricultural interests.

The location of the Canadian Pacific Railway Company's gigantic irrigation scheme is in Southern Alberta, the future of which is predestined to be a great one, and in its various developments likely to prove an attractive field for the investment of British capital. The district is well named "Sunny Alberta," for a more delightful climate, especially for settlers of British build, could hardly be imagined. The sunshine seems to be lavished upon it on a perennial scale, and its winters are mild enough to enable horses and cattle to range at will over their prairie homelands without being sheltered or fed, while in most other districts in Canada the live-stock have to be sheltered and fed during the severer months of the year. One enthusiastic writer, I have noticed, puts it that : "The soft kiss of the Japan current and the warm breath of the Chinook winds are felt through its sheltered valleys and its open plains"; but, as I have a good deal to say about Alberta, climatically and otherwise, in the course of this volume, it is unnecessary for me to enlarge further upon these particulars now.

The vast area which the Canadian Pacific Railway Company's irrigation scheme comprises lies between Calgary and Medicine Hat, and, embracing about 3,000,000 acres, extends over a stretch of territory 150 miles in length and 40 miles in width, having the Red Deer River on the north and the Bow River on the south, while the great iron road of the Canadian Pacific Railway pierces its heart throughout. This immense block of irrigable, though in some particulars non-irrigable, country represents the largest individual area marked out for irrigation purposes on the American Continent.

But, before detailing the general features of the scheme, it may be as well that I should indicate as a matter of history that, for some years after the Canadian Pacific Railway had pierced the great West so far, live-stock raising was the chief occupation of settlers, but gradually crop-farming insinuated itself, and it was found by experience that the country was equally well adapted for grain, fodder or root-crop cultivation, and offered special inducements in the direction of dairy farming and mixed farming. Then Southern Alberta had a series of dry years, which suggested to the settlers that their crops might be benefited by the introduction of irrigation, and this they did in their own little ways themselves, and with such success that it was thought that irrigation on a large engineering and commercial scale would facilitate the settlement of the territory and promote crop production. Then the Government took the question up, and began a series of general surveys, with results which have since developed in various directions, one of the most marked outcomes being the irrigation scheme of the Canadian Pacific Railway. I previously mentioned that irrigation work had come into practice in the Lethbridge district, under the auspices of the Alberta Railway and Irrigation Company, and also at Raymond, in the latter place to the great advantage of sugar-beet cultivation. In addition, many smaller individual irrigation undertakings have served to bring up the length of irrigation canals and ditches in Southern Alberta to a total of 480 miles, capable of irrigating, I understand, as many as 625,000 acres.

In arranging the engineering disposition and details of the Canadian Pacific Company's huge undertaking, the vast area of 3,000,000 acres was divided into three main sections—eastern, central and western—each containing as nearly as practicable 1,000,000 acres, and practical constructive operations were commenced in the western division first, being pushed forward with the vigour characteristic of the Canadian Pacific Railway Company. The western section will be the first to be opened up for colonisation purposes, and work in the eastern and central sections will be commenced at some later period. The physical characteristics of the area embraced by this scheme harmonise very readily with the construction of the main canals and auxiliary waterways necessary for the fulfilment of the project, as the land has an incline of some 1,100 ft. from west to east.

The point from which the water supply is secured is on the Bow River, about two miles below Calgary, where the main canal or channel commences. This canal, which is 17 miles long, has a width of 60 ft. at the bottom and 120 ft. on the water-line, and it carries a depth of 10 ft. of water. At the other end of the canal the water is delivered into a reservoir, secured by the

construction of a dam across a natural depression three miles long, half a mile wide, and 40 ft. deep. From this reservoir proceed three secondary canals, denominated A, B, and C. These are 30 ft. wide at the bottom and 60 ft. at the water-line, carrying 8 ft. of water. They vary in length, but that of the three combined is 150 miles. From these secondary canals a further distributive system commences, ditches being constructed which intersect the entire district for the purpose of conveying the water into the immediate neighbourhood to be settled, and thus placing it at the direct disposal of farmers, practically upon their holdings.

Down South in the United States the irrigation authorities are usually much less disposed to consult the convenience of settlers than is the case, at least, in connection with the Canadian Pacific scheme. There the plan adopted generally, I am told, is to conduct the water from a secondary canal or ditch to a point near the area to be irrigated, leaving it to the settlers themselves, singly or in combination, to construct the distributing ditches. In the case of the great Southern Alberta scheme a more generous view has been taken of the needs of the settlers, who will have the water just outside their farm limits, leaving them only to open up small furrow laterals with which to convey it, so to speak, right into their premises.

This new departure is one which cannot fail to commend itself to the intending settler on irrigated land, and increase correspondingly the rapidity with which the area will be colonised. When I mention that these distributing ditches which the company have embodied in their scheme aggregate in this western section alone to a length of some 800 miles, making, with the mileage of the main and secondary canals, a grand total for this section of 967 miles, some idea of the enormous outlay involved can be imagined. When the entire undertaking is completed it is anticipated that the total expenditure will aggregate something like 5,000,000 dollars—an enormous speculative outlay for an extra-railway enterprise, which really resolves itself into pioneer work, for even a corporation like the Canadian Pacific Railway Company.

There has been, from what I could see and learn when in Southern Alberta, no stinting of outlay in order to secure a first-class engineering result. In this connection I might aptly quote from a statement made by the most eminent authority on irrigation engineering on the American Continent—Dr. Elwood Mead, Chief of the Drainage and Irrigation Investigations, Department of Agriculture, Washington. Dr. Mead says: "The chief problem of the main canal was to build a waterway which would be free from leaks and all danger of breaks. The

precautions which have been taken to ensure this are greater than those usually observed: the specifications for stripping the surface soil and packing the embankments are so rigorous, and are being lived up to in all the work I inspected, and I have never seen more compact or uniformly solid banks than those being built."

In the construction of the canals and ditches "steam shovels," as the ponderous implements are called, corresponding somewhat to our English "steam navvies," and capable of shifting an immense amount of even refractory material "without turning a hair," have been used for excavating purposes, as have also some useful little locomotives in getting away the stuff rapidly. Elevating graders have also played their part in the business, both steam and horse power having been called into requisition. I am told that the total quantity of material—all of it, nearly, of virgin character, and hitherto in the history of the world left undisturbed in its sub-prairie condition by the hand of iconoclastic man or the less generous grasp of steam shovel—excavated in the main canal of which I have spoken has approximated 2,500,000 cubic yards. In the cases of the A, B, and C secondary canals about double that quantity has been removed. Anyhow, I learned that the sum total of excavation which had taken place in connection with the western section, including its distributing ditches, made up the gigantic figure of 8,250,000 cubic yards.

At one juncture it was found, I was told, that the top of a protruding cliff obstructed the fairway. Small shrift was made of it by the engineers, for they sliced away a portion 1,000 ft. long, 100 ft. deep and 180 ft. wide. It is a way modern engineering has in the West. Of course, when the eastern and central sections come to be dealt with the figures I have given will be immensely dwarfed, for, according to calculation, the scheme will, I understand, by that time have represented the excavation of as stupendous a mass of Mother Earth as 24,750,000 cubic yards, while the mileage represented by the canals will have reached the total of 2,900 miles. So far as the work of construction has gone—and I have shown that it has given a good account of itself—it speaks volumes for the executive and administrative capacity of Mr. J. S. Dennis, a civil engineer of high Canadian reputation, who now holds the post of superintendent of irrigation for the Canadian Pacific Railway, having his headquarters at Calgary.

Before a thorough appreciation of the importance to Western Canada of adequate irrigation can be arrived at it is necessary to look at the state of the Law in Canada with relation to the subject, for the settler on irrigated land must necessarily consider

his title to the water as well as his title to the land. Fortunately, the Canadian Law on this question is much more intelligible and equitable than those of the United States. In fact, it has been officially held on the other side of the International Boundary as a pattern Law, which should be copied by States in the Union in which irrigation is practised. The Canadian Law lays it down plainly that all water in the Dominion belongs to the Crown, and from this standpoint can only be acquired by farmers or corporations for irrigation purposes by making proper application to the Government and obtaining the requisite authority to divert it. The laws are strict with regard to water in Canada, but thoroughly equitable, and, from an outsider's point of view, I should say that little fault could be found with them.

Amongst other things, the Law provides that no stream shall be burdened with more permits for water than there is water to supply; that the amount of water to be supplied for a given area, which stands at present at one cubic foot per second for each 150 acres held, shall be fixed by the Government, and not left to the tender mercies of any company or individual having water to sell for irrigation; that all agreements for the supply of water for irrigation must be registered with the Government; and that disputes regarding the division or distribution of water shall be settled by the Government officials, without an appeal to the Courts or a bill of costs for either side. One of the best testimonies to the equity of the Canadian Law on the subject is the fact that, although irrigation has been practised in Canada for ten years, there has not during that period been one lawsuit bearing upon water-rights.

It is claimed, therefore, with every confidence that the main irrigation canal constructed by the Canadian Pacific Railway Company has an absolute title under the Canadian Law to draw 2,000 cubic feet of water per second from the Bow River, and it is further indicated that this scheme represents the first occasion in the history of the American Continent on which water has been supplied for irrigation under such an absolute title and with such a guarantee as to its reliable supply as the Canadian Pacific Railway Company are able to submit. For, as a matter of fact, although the Company are entitled, as I have said, to draw 2,000 cubic feet of water per second from the Bow River, there has not since the Government gauging commenced been a smaller flow than 3,000 cubic feet per second, while during the irrigation season, which extends from May 1st to October 1st, the flow ordinarily averages, I am told, about 6,000 cubic feet per second.

The volume of supply available is practically assured, because the source of the Bow River is well in the heart of the Rocky

Mountains, whose peaks are perpetually snow-capped, and whose massive clefts form the homes of innumerable glaciers, whence a constant flow of water is derived. More than that, the purchaser of an irrigated farm in the area with which I have been dealing has the guarantee of the Canadian Pacific Railway to supply him with water for all time. Consequently, the water-title is as good as the land-title, and nothing is more conducive to confidence in farming, which has always a heavy margin of speculation to its debit, than the knowledge that one's rights are secure.

There is just one point more I should like to deal with before closing this chapter. It has been argued by the critics of Canadian agriculturists that their fondness for the principle of irrigation is equivalent to a confession of weakness—a want of faith in their climate and in the fertility of the soil of which they speak so highly. This is quite a mistake. I have already indicated what led to the introduction of irrigation in Southern Alberta, where the soil is not entirely irrigable. There is no doubt that the question of irrigation as a necessity met with a check a few years ago owing to a succession of wet seasons, but, while in some districts it may be a necessity for successful crop-raising, in all districts it is a most advantageous aid to getting the best out of the fertile soil that is to be got.

Southern Alberta is really a semi-arid region, and not an arid region in the sense that some of the States on the other side of the International Boundary are such. A comparison of the statistics of rainfall goes to support this contention. The mean annual temperature at Calgary since 1900 has been 37·4, and the mean annual rainfall 20·21. In each of the American States of Montana, Colorado, Utah and Nevada the mean annual temperature has ranged from 42·40 to 50·32, and in the States of Utah, Nevada, Montana and California the mean annual rainfall has ranged from 10·32 to 22·50 inches. It seems a logical conclusion, borne out by the results of actual agricultural practice in Alberta, that, while in future years there is every faith in there being, as a rule, ample moisture for the crops without the aid of irrigation, yet the existence of such a valuable auxiliary resource would enable the farmer to give his crops some additional moisture when he cared to do so, or in the emergency of drought.

Such available artificial provision will, at all events, be a safeguard against harvest deficiencies, as the water will in its way be a fertiliser of Nature's own. Such, too, is the faith which the Canadian Pacific Railway Company have within them, and they are putting it into concrete form on a basis which is at once comprehensive and convincing, and especially so to one who has seen and heard what has been done, and is being done, on the spot.

CONCLUSIONS :

That the principle of Irrigation is seen in one of its highest developments in Western Canada.

That the Irrigation Scheme of the Canadian Pacific Railway, now in process of realisation, is one of the most remarkable of its kind in the world, and the largest in the American Continent.

That the prospective agricultural and industrial value of Southern Alberta is a country for exploitation and development, although already great, is immensely increased by this enterprise, and its future as a field for investment practically assured thereby.

That Irrigation in Western Canada conclusively proves that, even where not rendered absolutely imperative by physical and climatic conditions, its introduction vastly increases the productiveness and value of already fertile agricultural land.

SECTION IV.

**MINERALS AND MINING IN
CANADA.**

CHAPTER I.

GOLD AND SILVER.

THE CANADIAN MINING INDUSTRY IN 1906.—THE DISTRIBUTION OF GOLD IN THE DOMINION.—GOLD MINING IN QUEBEC AND ONTARIO.—GOLD MINING IN NOVA SCOTIA.—GOLD MINING IN THE YUKON DISTRICT.—GOLD MINING IN BRITISH COLUMBIA.—SILVER MINING IN THE DOMINION.

WHEN one comes to consider the fact that the Dominion of Canada comprises half of a huge continent, it is not surprising that it exhibits great diversity in its mineral resources, which are as varied as are the natural conditions under which they exist. It would be difficult to imagine a territory of equal area which possesses a greater number of minerals of economic value. But when it is remembered that the *per capita* value of the mineral production of Canada only amounted to 2.23 dollars in 1886, and has since increased to 11.84 dollars, or probably more, there is obviously, notwithstanding this important increase, very great scope for further developments at the hands of capable modern mining enterprise and well-directed capital. It will form part of my present purpose to indicate in what directions these may be most advantageously applied.

First let me say that never in the history of Canadian mining has there been a year of such marked progress as that which characterised 1906. It has shared in the fullest measure in the general prosperity which, happily, after a period of depression, has overtaken the industries and commerce of the Dominion. This is fully confirmed from official sources, for I see that in his summary report for 1906 the Director of the Geological Survey of Canada states that : " It can be said without fear of exaggeration that the condition of the mining industry in Canada in 1906 has been one of large prosperity ; that it has, in fact, achieved greater progress and given bigger returns than during any previous year on record."

Further, the same authority reports : " In the year 1905 the total mineral output reached almost 70,000,000 dollars, as

compared with but a little over 60,000,000 dollars in 1904, and, while actual figures of production are not yet available for 1906, the activity evidenced in both the metalliferous and non-metalliferous mining will, no doubt, result in another large increase being shown. There has been during the year an active demand for nearly all mining products, and the higher prices realised, especially for the metals and their ores, have not only helped to increase the actual output but have stimulated development and prospecting throughout the country."

These statements, I am glad to say, fully justify the views to which I gave expression—as the result of what I saw and heard and investigated during the time I spent in Canada—when these chapters were originally published in *The Financier*, and which I have, accordingly, all the less hesitation in repeating now in this more permanent record. And as there never was a period in the history of the Dominion when mining enterprise received so much encouragement or met with more financial and practical success than is the case at the present moment, I have thought it right to enter at some length upon this portion of my survey of Canada. The territories are so vast and the distribution of the economic minerals so widespread throughout them that, with the introduction of further capital and the increase of population, there can be no question that the Canadian mining and metallurgical industries have an abounding prosperity in front of them. This estimate may, doubtless, to some seem ultra-optimistic, but from what I saw and heard during my visit and from authentic information, official and otherwise, which I was able to obtain in authoritative quarters, I consider the conclusions at which I have arrived may safely be regarded as well based.

It was, of course, impossible for me, during the necessarily limited period over which my visit to Canada extended, to survey with any pretensions to completeness even the most noteworthy mining districts of the Dominion. The mining districts of British Columbia, like those of Nova Scotia, were beyond the scope of my visit, and I need hardly add that considerations of time placed the Arctic seclusion of the Yukon Territory, with its gold-mining industry, beyond the pale of my investigations. Nevertheless, I was enabled to visit more than one valuable mineral property, while the opportunities I had for gaining reliable information as to the progress and present position of the principal mining districts were numerous.

* * * * * *

It is, perhaps, desirable that I should deal in general terms with the mineral resources of Canada before proceeding to the specific. In coming to look upon Canada as a mineral country, it is well, to begin with, to glance at the manner in which the more

important economic minerals are distributed throughout the Dominion as a whole. If we take gold, in the first place, we find that it is very widely distributed, and, as it is found from Nova Scotia to Yukon, and from Quebec to British Columbia, there is little doubt that it exists in many other districts throughout the Dominion wherein its presence has not yet been definitely discovered. Geological formations, indeed, confirm one in this theory.

As matters stand now, however, Canadian mining statistics show that the Yukon and British Columbia are the districts in which the most valuable gold discoveries have as yet been made, and the rich finds of gold, and especially of alluvial gold, in the Klondyke division of the Yukon district are largely responsible for the important increase which took place in the value of the mineral produce of Canada per head of the population, as already mentioned. Altogether, the Yukon Territory is credited with 57 per cent. of the total Canadian gold production. Moreover, the fact that alluvial gold-mining may be, to a certain extent, successfully carried out in districts that are sparsely populated and far removed from ordinary means of transport and communication acts in itself as an inducement to the permanent settlement of population in new territories, and thus affords opportunities for opening up new regions to agriculture and industry which, in the aggregate, are of the greatest significance to a growing and prosperous country like Canada.

At the present time gold is chiefly worked in the Yukon district—where, however, there has been a decline in the output latterly—and British Columbia, and to a less important extent in Nova Scotia, Quebec and Ontario. Gold has also been found in Alberta, Athabasca, at the base of the Rocky Mountains, and in isolated deposits—isolated, that is, so far as present information goes—in the extreme north of the Keewatin district. There is little reason to doubt that it also exists in various parts of the Mackenzie Territory. In British Columbia the gold is derived both from lode mining and from alluvial deposits, but the gold produced in Nova Scotia and Ontario is the result almost entirely of lode mining. Nevertheless, the fact remains that the gold output of Canada has shown an annual decrease since 1900, owing to the decline in the placer yields, to which the Yukon production had so largely contributed; and I see that the Director of the Geological Survey of Canada, in the Summary Report from which I have already quoted, remarks that this decline has in all probability continued in 1906.

Coming now from the general to the specific, and dealing with Canadian gold mining province by province, I may appropriately commence with the older provinces. The existence of gold in Eastern Quebec has been known for many years. The yellow

metal was first discovered in the Chaudière district about the year 1824, and further important discoveries were made at intervals subsequently. Mining operations commenced in 1847, but they have seldom been prosecuted systematically or with great vigour. This, no doubt, has mainly been attributable to the fact that the quartz veins containing it were seldom found of a payable character. There was a greater disposition to confine operations to the gravels of the old river-beds which were tributary to the Chaudière River.

Difficulty has been found in working these old channels, but little doubt exists as to their richness in gold, and nuggets of a value of over 1,000 dollars have been found in the gravels. Desultory mining operations have also been conducted in the Ditton River district, and a good deal of coarse gold obtained. Latterly, I am afraid, gold-mining operations must be regarded as a negligible quantity in Quebec. I do not know what the most recent returns may indicate, but the Census of 1901 only gave an output of 46 ounces, valued at 828 dollars, produced wholly from placer mining. Nevertheless, there are not wanting those who predict profitable results for mining operations conducted on a commercial scale, with adequate capital and with modern methods of development.

In Ontario it has been otherwise, for the Census return from which I have just quoted showed a production of gold for the year of 14,931 ounces from lodes or veins, valued at 256,609 dollars, in addition to which gold ore was marketed of a value of 8,500 dollars. These figures do not, however, quite accord with those given in the Report for 1906 of the Ontario Bureau of Mines, which gives the following details regarding the gold-mining industry of the province from 1901 to 1905 :—

| | | 1901. | 1902. | 1903. | 1904. | 1905. |
|--------------|----------|---------|---------|---------|--------|--------|
| Mines worked | .. No. | 11 | 20 | 19 | 12 | 13 |
| Ore treated | .. Tons | 54,336 | 48,544 | 32,347 | .. | 17,510 |
| Gold product | .. Ozs. | 14,293 | 13,625 | 10,383 | 2,285 | 5,541 |
| Gold value | .. Do's. | 244,443 | 229,828 | 188,036 | 40,000 | 99,885 |

Even as these figures go, however, the production is not large, although the figures for 1905 exhibit an improvement upon those for 1904. The chief producing mines were the St. Anthony Reef, on Sturgeon Lake; the Shakespeare, in the Algoma district; the Sultana, on Lake of the Woods; and the Big Master, on Manitou Lake. Rich finds have also taken place at the Laurentian Mine, Manitou Lake. Nevertheless the output of gold in the Eastern Provinces cannot be regarded as ever having been so satisfactory as might have been, and now may be, possible.

The existence of gold in Ontario has been known from early times, and the mines of Hastings County occasioned considerable excitement in the early 'seventies. The Gatling mine in that district was worked on a large scale for several years. It has been in this Hastings County, in the east of the province, and in the district lying between Port Arthur and the Manitoba boundary on the west—in which latter district are situated the Lake of the Woods, Rainy Lake, Seine River and other mining districts—that gold-mining operations have mainly been centred of recent years. The earlier operations were conducted under great difficulties, but these have to a large extent been removed by the opening up of the country, as well as by the introduction of improvements in mining, milling and smelting methods. So that at the present moment gold mining probably presents a more promising outlook than at any previous period in the history of the province, especially in the newer gold-bearing regions westward of the Thunder Bay district, where a good deal of activity has been shown in developing old workings and prospecting at new points. In the western districts of Ontario the gold ores are for the most part free-milling in character, but in the Hastings County district they are usually otherwise, for, while the gold is in some cases free, it more usually occurs in association with arsenical and pyritous minerals.

Large ore bodies have in different areas been subjected to more or less development, but the veins, as a rule, are of only moderate width. Hundreds of claims have been opened up, and of these a small proportion have been equipped with mining plant, while a few have even got so far as paying dividends. Some few years ago there were, I believe, some 300 head of stamps, and the amount of ore milled aggregated then about 60,000 tons, producing some 20,000 ounces of gold, valued at about 420,000 dollars, which worked out at an average for the whole province of nearly 7.25 dollars per ton of ore. Several of the mines attained a depth varying from 300 to 500 ft., but the workings are for the most part as yet shallow. Still, prospects are promising, and there seems little doubt but that there has been laid the foundation in Ontario of what may yet be developed into a sustained and profitable gold-mining industry if exploited generally under such conditions, as to capital, equipment and skilful engineering, as are calculated to render such a reality possible.

More fortunate than either of the two provinces which I have just dealt with has been Nova Scotia. The gold discoveries which have been made in Nova Scotia date back to 1858, but the first discovery to attract serious attention was made by a farmer in 1860, and as two years later the Government appointed

a Gold Commissioner, the mining industry, so far as the yellow metal is concerned, may be said to have commenced in that year. The gold-bearing rocks for the most part extend in a belt varying from ten to seventeen miles in width, stretching along the Atlantic coast. These rocks are mostly slates and quartzites, and the formations are such as to cause elliptical domes, each of which is the centre of a system of gold-bearing veins.

Although more than fifty such centres have been exploited, gold-mining operations in Nova Scotia have mainly been limited to the working of veins that outcrop on the surface, and I believe that the greatest depth yet reached is about 700 ft. Most of the quartz is free-milling, and the gold is of a high quality, frequently selling at as much as 19.50 dollars per oz., while the yield per ton in some districts has been as high as $1\frac{1}{2}$ ozs., although in isolated cases much higher averages have been obtained.

Again, the most recent official figures as to the gold output of Nova Scotia are not available, but an estimate published in the province has calculated the returns from the gold-mining operations for 1906 at 260,000 dollars. Gold mining in Nova Scotia has not, however, recovered the position it held a few years ago, owing mainly, I hear, to surface ores, which were those chiefly worked, having become nearly exhausted. It is confidently anticipated by those who know the gold deposits in the Province and are in a position to judge that Nova Scotia may yet become an important gold-producing country. If the mines are worked at greater depths, and modern plant suitable for such operations is employed, along with expert mining engineering supervision, there is, it is believed, a possible important future for gold mining in the Province, especially if, for economical working, a number of the smaller mines are amalgamated. These considerations, I learn, are not escaping the attention of the mine-owners and the enterprising colonists generally.

But those regions of Canada which attract most attention, so far as gold mining is concerned, are the Yukon district and British Columbia. Situated between the Mackenzie River and the United States territory known as Alaska, the Yukon is for the most part drained by streams tributary to the Mackenzie River, and until the past few years was regarded as a veritable *terra incognita*, whose productive resources, principally skins and furs, were exploited mainly through the enterprise of the Hudson's Bay Company. It was about the year 1878 when miners first began to pierce this solitude, and some little gold mining was done on the Lewes, Salmon and Stewart Rivers in the early 'eighties. It was not, however, until the autumn of 1896, when the rich discoveries of the Klondyke River became known, that any great migration of miners to the Yukon district took place. Then,

however, the condition became one of veritable stampede, and in 1897 and 1898 gold-miners and fortune-seekers—experts, many of them, but mostly a motley crew—rushed to Klondyke from all parts of the world. Here again the usual story of a gold rush and its consequences, heartrending and lamentable many of them, was repeated. But the industry established itself, prosperous communities grew up, and Dawson City, the capital, became a place of yearly increasing importance.

The Klondyke goldfields are situated in a tract of country covering an area of some 800 square miles between the Klondyke and Indian Rivers, and the gold is worked in the gravel deposits of the valleys and the adjacent slopes, but lode mining will probably before long take a recognised place in the mining operations carried on in the territory. It has been made the subject of official anticipation, I believe, that gold to the value of at least 95,000,000 dollars will be produced from the deposits of the Klondyke valleys within the next few years. Many of the valleys are known to be phenomenally rich in gold, some of the claims being estimated each to produce half-a-million dollars' worth, and many more between a half and a quarter of a million dollars.

Moreover, as lignite coal has already been found and worked in several parts of the district, and copper has been discovered in the form of sulphite ores, and as discoveries have also been made of argentiferous galena, the future of the Yukon as a mining district seems practically assured. Just at present, however, local conditions are in a transition state, and mining operations have recently suffered accordingly. In 1905 the production of gold in the Yukon district experienced a decline in value to the extent of 2,172,800 dollars, and, in his Summary Report for 1906, the Director of the Geological Survey of Canada estimates, I see, that "from current reports apparently not more than 6,000,000 dollars is to be expected this year." The result is disappointing, but, in view of the transition state to which I have just referred, there is no justification as yet for the ultra-pessimistic views to which expression has been given in some quarters.

We are, however, on less debatable ground when we come to consider the gold-mining resources of British Columbia, in which province the output of gold has of recent years been much greater than ever previously known in its history, surpassing even the results of 1863, when placer-mining reached its climax, and the output of gold attained a total of nearly 4,000,000 dollars. After that year the production of the precious metal gradually declined, until by 1883 the output of gold, all of it being from placer deposits, had dropped to less than 400,000 dollars. A fresh impulse was, however, given to gold mining in British Columbia by

the penetration of the Canadian Pacific Railway through the southern part of the province, and by 1886, when "Canpac" trains first ran regularly between the Atlantic and Pacific Coasts, valuable discoveries of gold ore were being made in the district of West Kootenay. The exploitation of these was encouraged by the opening up of branch lines of railway, and by the establishment of steamer services on several of the lakes and rivers. Then came the exploitation of the East Kootenay district, the Yale region and various coast districts, and as means of transport presented themselves, so mining activity asserted itself and increased.

Alluvial mining is still largely practised in the British Columbian gold-yielding districts, but to a great extent placer methods have been superseded by hydraulic mining, which necessarily involves the expenditure of heavy capital at the outset, although it enables large quantities of low-grade gravels to be ultimately dealt with cheaply. Much capital has been sunk in the Cariboo districts in the purchase of mining machinery and the construction of ditches, and dredging operations have also been prosecuted on the Fraser and Quesnel rivers. Although a good deal of ore is raised in different parts of the province, the greater part of the yield for which British Columbia is responsible comes from the smelting of the ores derived from the Rossland and Nelson districts. These ores mostly consist of copper pyrites, from which a rich auriferous copper matte is produced. The Rossland smelter returns have shown that the values ordinarily range from about 10 dollars to about 30 dollars. The last season to be officially dealt with was a dry one, and this fact, I understand, somewhat disadvantageously affected the placer returns. Nevertheless, the gradually progressive nature of the gold returns from British Columbia helped in some measure to compensate for the decreased production in the Yukon district, with the result that Canada was able to export gold-bearing quartz, nuggets, dust, &c., during 1905 to the value of 13,706,969 dollars, while the production for that year amounted in value to 14,486,833 dollars, to which total the Yukon contributed 8,327,200 dollars. The gold production for the entire Dominion in 1906 amounted in value to 12,023,932 dollars—to which total the Yukon district contributed 5,600,000 dollars—showing a decrease for the year of 2,462,901 dollars.

Coming now to consider the position of silver production in Canada, I find that mining for silver in the Dominion has not hitherto attained such industrial or financial importance as mining for gold, but the most recent developments point to possibilities in this direction which were, until recently, undreamt of. The silver mines of Cobalt, with which I deal fully in subsequent

chapters, give promise of becoming probably the richest in the world, rivalling, or exceeding perhaps, even the boasted traditions of Potosi and Broken Hill.

Various districts in the Dominion contain rich deposits of silver ores, although hitherto silver mining on a sustained commercial scale has chiefly been confined to British Columbia, where the working of silver-lead ores (argentiferous galena) has become an industry of considerable importance. There are extensive deposits of these argentiferous galena ores in the Ainsworth and Slocan divisions, of West Kootenay, and there are very similar ore-bodies in East Kootenay. These are supplemented, however, to an important extent by ores derived from various mines in the Nelson district of West Kootenay, of which the Hall mines may be said to be representative, and which ores present silver and copper in combination.

Harking back a little, the year 1899 was marked as a period of considerable activity in silver-mining in West Kootenay, and the silver lead ore raised in that year amounted to 25,267 tons, which averaged a yield of 87 ozs. of silver and 40 per cent. of lead to the ton. In the same year the Hall mines alone produced 30,000 tons, averaging 15 ozs. of silver to the ton and $2\frac{1}{4}$ per cent. of copper. In addition to the silver mines at present worked in British Columbia, there are numerous other known deposits of argentiferous galena ores in that Province and in the Yukon district, but lack of transport facilities has so far offered little inducement to exploit them seriously, especially the last-mentioned.

Silver, however, is found in other combinations as well as in the form of silver-lead ores, for rich silver deposits occur in Ontario, especially to the north-west of Lake Superior. Silver mining operations in Ontario, indeed, are chiefly represented by the extensive and increasing development work now being carried on in the extreme western portion of the Province, in the neighbourhood of Cobalt, and elsewhere in the Thunder Bay and Port Arthur districts. From 1870 to 1884 the district was made famous by reason of the successful mining operations carried on at the Silver Islet mine. The outcrop of a vein was found on a small rocky islet about a mile from the mainland, and this outcrop contained ore so exceedingly rich in native silver and argentite that the discovery excited world-wide interest. Indeed, ore to the value of something like 3,250,000 dollars was extracted during the existence of the mine, and the vein was followed to a depth of nearly 1,200 feet. Westwards the Silver Mountain and Beaver mines produced much rich ore, and as the silver deposits of the district show no signs of exhaustion, but on the contrary are being actively exploited, in certain cases with

encouraging results, it would be wildly erroneous to assume that silver mining in Western Ontario is an industry of the past.

The geological formation in the district, it is interesting to note, consists of a series of carbonaceous shales and argillites, having cherty rocks beneath them, intersecting which are veins in which occur native silver and argentite, either alone or in combination with galena and zinc blende, in a gangue of calcite and quartz, with other combinations. But, apart from these silver veins, deposits of galena have been developed at various points in Ontario, and some years ago a smelter was in operation on the ore derived from the Frontenac mine in Frontenac County. These ores, however, were not particularly rich in silver, so that they might properly be regarded as those of lead rather than of silver.

In Quebec also silver is found, chiefly in association with ores of copper, in connection with which it is mined and exported. As in the case of gold, it may be safely anticipated that many more valuable discoveries of silver in different parts of the Dominion will take place before long, and the rich finds at Cobalt will administer a useful stimulus to enterprise. The statistical position as regards the exportation of silver from Canada is officially stated to have represented for the year 1905 a value of 2,777,218 dollars, and the total production for the same year a value of 3,605,957 dollars. The production of silver in the Dominion during 1906 has been officially placed as having been of a value of 5,723,097 dollars. No circumstance is better calculated to promote an increased measure of silver-mining activity throughout the silver-bearing Canadian Province, than the rich returns that are rewarding mining operations in the Cobalt district of Ontario.

CONCLUSIONS :

That important Gold Deposits are widely distributed in Canada.

That the proved areas include British Columbia, Klondyke, Quebec, Ontario and Nova Scotia.

That Gold to the value of 95,000,000 dollars may, according to official calculation, be forthcoming within a few years from the Klondyke Valleys.

That the future of the Yukon seems assured when the present transitional conditions are ended.

That British Columbia's production is increasing.

That, thanks to the rich Cobalt discoveries, Canada is now an important Silver producer.

That many more valuable discoveries may safely be predicted, as the rich Cobalt finds are bound to exercise a stimulating influence on Silver-mining activity in Canada.

CHAPTER II.

COAL AND IRON.

THE COALFIELDS OF NOVA SCOTIA.—COAL IN BRITISH COLUMBIA.

—THE COAL DEPOSITS OF THE NORTH-WEST.—IRON IN THE MARITIME PROVINCES.—IRON IN QUEBEC AND ONTARIO.

COAL, wherever it may occur in payable quantities, offers the greatest of all stimuli to the development of industries. Coal has been the most potential of all the industrial assets of this old country of ours, and wherever it is found in commercial quantities and of commercial quality its possession and utilisation combine to render it of supreme significance to the material interests of the fortunate country. Whilst very extensive and valuable deposits of coal exist in Canada, they are, curiously enough, widely separated from one another. Thus we find that coal is abundant and extensively worked chiefly in the territories near the Atlantic and Pacific coasts, while in the more central portions of the Dominion the deposits are few and unimportant, vast stretches of territory being, so far as at present is known, absolutely free from the occurrence of coal.

The most important coal-mining districts in the Dominion are in Nova Scotia and British Columbia. Coal also occurs, and is worked mainly for local use, in the province of New Brunswick. There are coalfields, too, near the United States boundary, in Manitoba and Saskatchewan, while an extensive coalfield presents itself in the Province of Alberta, where coal and lignites are being worked to an increasing extent eastward of the Rocky Mountains. There is no coal—none, at least, of any commercial consequence—either in the provinces of Ontario or Quebec, although, to compensate for this deficiency, Nature has endowed these provinces with stocks of petroleum and natural gas, which to some extent take the place of coal.

But by far the largest production of coal in the Dominion takes place, as far as my information goes, in Nova Scotia. Indeed, this carboniferous formation covers more than half the area of Cape Breton Island, as well as a large part of the Cumberland, Hants and Pictou Counties on the mainland. Coal has been known

to exist in Nova Scotia since the latter part of the seventeenth century, and in 1672 Nicholas Denys, in describing some mineral concessions on the Island of Cape Breton, wrote that there were mines of coal equal in quality to the Scottish product. No attempt, however, at working the coal on underground principles was made until 1784, but previous to that the outcrops had been worked. In 1827 the mines at Sydney became the property of the General Mining Association, which controlled practically all the coalfields of Cape Breton Island until the year 1857, when many of their claims were surrendered. It was after this year that coal leases came to be freely taken up, and miners were offered liberal terms to work the deposits.

The coal now mined in Nova Scotia is mostly of a bituminous character, and is well adapted for coke and gas making purposes. First-rate steam coal is also mined, and, generally speaking, the shipping arrangements available are admirable. The principal mines have good railway facilities at their disposal, and in some cases the coal is loaded into the ships practically direct from the mines. The principal market for Nova Scotian coal is Quebec, but there is a large demand throughout the Province of Nova Scotia itself, and New Brunswick, Newfoundland and Prince Edward Island also absorb a good deal of the coal raised, while some is shipped to the United States and the West Indies. It may be added that the coal mines of Nova Scotia have given employment to over 5,600 men on the surface and in the underground workings, and the development of the iron industry of the province is likely to cause a corresponding expansion of the coal industry.

The first place amongst the coalfields of Nova Scotia—generalising to begin with—may be credited to that of Sydney, situated in the north-east corner of Cape Breton County, and embracing also a portion of Victoria County. It covers an area of some 200 square miles, and, having the Atlantic Ocean on three of its sides, the conditions of extraction and shipment are favourable to economical development. Much of this field extends under the sea, but the character of the strata enclosing the coal is favourable to submarine operations. Some of the seams range in thickness from three to twelve feet, and of the collieries at work the equipment is generally on a scale of modern completeness.

The Cumberland coalfield, adjoining Chignecto Bay, is in the west of Nova Scotia, and embraces the Joggins and Springhill coal basins, the seams in the former ranging in thickness from $2\frac{1}{2}$ to $9\frac{1}{2}$ ft., and in the latter from $2\frac{1}{2}$ to 13 ft. Several collieries are at work in both basins, but, as the mines are fiery, great care has to be exercised in conducting mining operations. The Pictou coalfield covers an area of about 25 square miles, in the centre

of Pictou County, and although the field is relatively small, some of its seams extend to a thickness of no less than 38 ft. The opening of this field dates from 1798, but its systematic development did not commence until the General Mining Association acquired control of the Cape Breton field in 1827, as I have already mentioned. Two other coalfields, the Inverness and Richmond, may be mentioned, although these are of less importance than those to which I have just referred.

The neighbouring province of New Brunswick has various deposits of bituminous coal, which mineral was one of the first in that locality to attract attention. It is said to have been mined as far back as 1782 in the Grand Lake district, adjoining the Newcastle River, the entire area of the Newcastle basin being estimated at about a hundred square miles. It is assumed that other deposits of coal may be found in the province, and the same is thought likely to be the case in the neighbouring island province of Prince Edward Island. But in neither case, so far as I was able to ascertain, have operations been vigorously or seriously conducted on commercial principles.

But, to return to Nova Scotia, I find that, in the absence as yet of official figures, the output of coal for the Province during 1906 amounted in value to 12,575,000 dollars, which represents, I understand, the record coal production in the history of Nova Scotia. Nor do the coal exports of the Province seem to have failed to increase in corresponding measure. According to figures which were authoritatively published in that enterprising Halifax daily newspaper, *The Morning Chronicle*, in its last New Year's Day issue, which reached me, of course, after I had returned to this country, it appears that the shipments of Nova Scotian coal last year totalled up approximately to 5,213,000 tons, which represent an increase of 530,000 tons on the shipments for 1905.

The concluding quarter of last year was unfortunately marked by a bitter dispute between the Dominion Coal Company, Ltd., and the Dominion Iron and Steel Company, Ltd., and this and other unpropitious circumstances caused the closing three months of 1906 to compare unfavourably with the three earlier quarters of the year. But for these intervening conditions the production of coal in, and the shipment of the mineral from, Nova Scotia would obviously have been still greater than has been the case, record-breaking even, I believe, as it has been. Happily a *modus vivendi* has at last been established, and this fact augurs well for the future. Certain it is, from all I could learn when I was on the other side, that if internal dissensions can only be avoided—and we on this side are rather disposed to smile at the molehills of which polemical mountains appear to be made in the province—there is a great future awaiting the further

development of the coalfields of Nova Scotia, in which British capitalists would not object, under suitable conditions, to be further interested than is the case at present.

The following list tabulates the shipments from some of the principal coal companies of the Province for 1906, and is suggestive of the large total production for which each company is responsible, but of which the figures are not yet available. In some cases the companies largely consume their own coal, as, for example, in the case of the Nova Scotia Steel and Coal Company, while nearly all do a home and inland trade as well as a shipping trade :—

CAPE BRETON COUNTY.

| Company. | 1906. | Increase. over 1905. |
|----------------------------------|-----------|----------------------------|
| Dominion Coal Co. | 3,160,000 | 247,000 |
| N. S. Steel and Coal Co. | 662,000 | 126,000 |
| Gowrie and Blockhouse | 37,000 | 3,080 |
| Other Mines | 15,000 | — |

PICTOU COUNTY.

| | | |
|--------------------------------|---------|--------|
| Acadia Coal Co. | 281,000 | 23,000 |
| Intercolonial Coal Co. | 280,000 | 72,000 |
| Marsh Mine | 37,000 | — |
| Pictou Coal Co. | 1,000 | 1,000 |

CUMBERLAND COUNTY.

| | | |
|---|---------|-------|
| Cumberland Railway and Coal Co. .. | 390,000 | — |
| Maritime, Minudie, Strathcona and Fundy Coal Co.'s | 95,000 | 5,000 |
| Canada Coal and Railway Co. | 35,000 | 2,000 |

INVERNESS COUNTY.

| | | |
|-----------------------------------|---------|--------|
| Inverness Railway and Coal Co. .. | 206,000 | 73,000 |
| Mabou Coal Co. | 13,000 | 10,000 |
| Port Hood Coal Co. | 8,000 | — |

In those cases in the above tabulation in which there are blanks decreases have occurred instead of increases, but in every instance, as it happens, these are unimportant.

And now I come to the coal deposits of British Columbia, which figure next in industrial importance in the Dominion to those of Nova Scotia. Coal is widely distributed throughout the province of British Columbia, and its existence in workable and payable seams has contributed an important stimulus to gold-mining operations throughout the Province. For the most part, however, actual coal-mining operations are as yet confined to certain points on the coast, and also to the Crow's Nest field in the Rocky Mountains. This remarkable coalfield has been producing large quantities of coal—the output before the recent strike being 3,500 tons a day—and is supplying the greater part of the coke used for smelting operations in the West Kootenay district. The directors of the Crow's Nest Pass Coal Company, Limited, have, I hear, just decided upon the issue of 500,000 dollars of new stock. The money thus obtained will be used in the further development of the company's properties in British Columbia. The capital of the company will then amount in all to 4,000,000 dollars.

I believe, however, that the principal coal-producing properties for shipping purposes in British Columbia at present are the mines of Nanaimo and Comox, in Vancouver Island, but there are others which should not be ignored. The larger proportion of the coal there raised is shipped to California and Alaska, and also to various parts of the Pacific Coast, while inducements are being offered for shipping it further afield still. Anthracite is found in the Queen Charlotte Islands, but, as I have already indicated, true coal as well as lignite and lignite coal occur in many parts of the Province, although so far their commercial significance is chiefly local. As matters stand now, there can be no question that there is a big future awaiting the development of the coal resources of British Columbia, upon which province numerous contiguous districts on both sides of the International Boundary practically depend at present for their supplies of coal and wood-fuel.

I have already mentioned that coal is found on the southern border of Manitoba and Saskatchewan. The deposits are in close proximity to the line of the Canadian Pacific Railway, the main line of which pierces the southern extremity of the Alberta coal-field, which is one of large extent, and, as that Province develops, must eventually prove to be of the greatest importance to that part of the Dominion. The coal of this region is found to improve in fuel quality as the Rocky Mountains are approached. The lignite coals of Western Alberta make admirable fuel, and there are many deposits of bituminous coal in the foot-hills adjoining the mountains. In the Bow River Valley some coal and anthracite are produced, the output being limited mainly by market requirements.

The Medicine Hat region in Alberta also has lignite deposits, and it may be remarked that, although the lignites found in the Eastern plains have not the same fuel value as true coals, still they meet the requirements of the agricultural communities of the prairie country admirably. It has been calculated that in the Souris country the lignite underlying each square mile amounts to more than seven million tons, and it has been estimated that the fuel contained in a seam worked at Lethbridge, between the Belly and Bow Rivers, amounts to something like 330,000,000 tons. Moreover, the coal-bearing region of the North-West Territory between 56 degrees latitude and the International Boundary is approximately 65,000 square miles in area. Nor must I omit mention of what is probably the most important lignite colliery enterprise in all the North-West, namely, that of the Western Dominion Collieries, situated at Bienfait. This town is close to the Manitoba boundary, and is an admirable centre for the distribution of the coal. At present the output is about 13,000 tons a month, but it is only a question, evidently, of a short time before this production will be very largely increased.

Then it is well known that lignites and lignite coals abound in the Mackenzie district, while coal also occurs in the Parry Islands, in the extreme north, and other fuel minerals in Grinnell Land; but, as these are inaccessible for all present purposes, it is impossible, and unnecessary, to make any computation as to their value. In the Yukon district, as I mentioned in my last chapter, good lignite coal is known to exist, and has been to some extent already advantageously worked.

The natural conclusion, therefore, is that the development of these extensive deposits of coal and mineral fuel will correspond in degree with the increase of population and the extension of settlement in the various territories. Many of the deposits will be exploited solely for the purpose of meeting local demand, but with the increase of transport facilities the more valuable coal deposits will gradually find for themselves a shipping demand, just as has been the case with the principal mines of British Columbia and Nova Scotia. At all events, it is a matter of supreme satisfaction that such valuable coal deposits are available in the great North-West, and this, with the other mineral wealth available and the immense agricultural resources presented, offers abundant inducement for ultimate exploitation by British and Canadian capital and enterprise. As matters stand now Canada as a whole makes a very good showing in coal production. In 1905 the output of her mines amounted to 8,775,933 tons, valued at 17,658,615 dollars, and in 1906 to 9,916,177 tons, valued at 19,945,032 dollars, of which Nova Scotia provided about 60 per cent.

From coal to iron is, geologically and commercially, the most natural and easy transition imaginable. Nature has so arranged matters that, in nine cases out of ten, the fuel mineral and its metalliferous congener are found in close association, both physical and geographical—a providential arrangement for which, no doubt, we are all truly thankful. At all events, in this particular Canada has been generously treated; but still, quite apart from this, iron is found on its own account in important quantities in every province in the Dominion. Probably no specific district in the whole of Canada is without deposits of iron ores of one kind or another, but smelting operations are as yet chiefly confined to Nova Scotia, Ontario and Quebec. As I shall deal with the iron and engineering interests of Canada in another Section of this volume, I limit my observations here to a brief review of the distribution of iron ores throughout the Canadian Provinces, as it is the possession of this metallurgical asset in large quantities and excellent quality that renders the future of the Canadian iron and steel industry a matter of such keen interest to all who are concerned in the financial and industrial development of the Dominion.

If I take Nova Scotia first, I find that the occurrence of iron in that province was first noted in the year 1604, when Lieutenant-General Des Monts, while surveying the coast, noted the presence of layers of magnetic iron-sand on the beach of St. Mary Bay, and also veins of iron ore in the trap-rocks of Digby County. It was not, however, until the first decade of last century that any attempt to utilise the iron-ore deposits of Nova Scotia was made. About that time a Catalan forge was erected at Nictaux; but, as I briefly trace the subsequent progress of iron manufacture in the province in another chapter, I content myself here with noting the important fact that practically all the different varieties of iron ores are met with in Nova Scotia, including hematite and magnetite, and even bog-ores.

In Cape Breton there are important deposits of red hematite, and in Pictou County quite a variety of iron ores occur, including spathic ore, specular ore, red hematite and limonite; and practically all over the province there are deposits of iron ores of one kind or another. So that, while important developments are now in progress with regard to the iron industry of the Province, it may be safely assumed that it is as yet only in its infancy.

In New Brunswick iron ores, including hematite, are found in Carleton County, and other occurrences of iron ore have been noted on the Bay of Fundy and in Charlotte County.

The products of the iron-ore deposits of Quebec were amongst the first mineral emanations of that Province to be utilised. Here, as in Nova Scotia, quite a variety of ores are met with, and the

magnetite ores have been worked at a number of points in the Ottawa district and in the Eastern townships. The principal operations in iron smelting have, however, been confined to the bog iron ores, found east of the St. Lawrence and in the St. Morris River district—in which district, by the way, the importance of the iron-ore deposits was recognised more than two centuries ago by the early French settlers.

In Ontario the ores of iron are again found widely distributed, and in the Eastern Counties many of the deposits have been more or less vigorously worked. Large deposits of hematite and magnetite exist in the area traversed by the Central Ontario and Irondale, Bancroft and Ottawa Railways. Hematite and magnetite also occur in numerous deposits in Western Ontario, and similar occurrences are met with west of Thunder Bay. The Atikoken deposits are mentioned specifically in my chapter dealing with Port Arthur, to whose prosperity the working of these deposits will materially contribute. Altogether the iron mines of Ontario produced in 1905 211,597 tons of ore, valued at 227,909 dollars, as compared with 53,253 tons, valued at 108,068 dollars, in 1904. The production for 1905 was, with the exception of those for the years 1901 and 1903, the largest on record.

It seems that the increase for 1905 was mainly due to the fact that the Helen Mine, in Michipicoten district, was in operation during the whole year, while it was only working during part of 1904. This Helen Mine, which is owned and operated by the Lake Superior Power Company, is the largest producer of iron ore in Ontario, the output averaging 800 tons per day. During the summer this ore is shipped to the ore dock at Michipicoten by the Algoma Central Railway, and it is there loaded into boats for Hamilton, Pittsburg, or wherever else the ore may be marketed. During the winter the ore is stock-piled some four miles from the dock, whence it is loaded by steam shovel in the summer on to cars, by which it is shipped to the ore dock. The No. 1 shaft at the Helen Mine had been sunk to a depth of 286 feet by the end of 1905, and altogether about 1,500,000 tons of ore had been mined. It is calculated that as large an amount of similar ore still remains in the mine, but mining operations have been made more difficult by the increasing occurrences of masses of pyrite. The method of mining employed is similar to that known as the "room and pillar" method in coal mining. All work in the mine is done by contract, and twelve machine drills were run on each shift, the ore being dumped direct into an Austin crusher of 2,500 tons capacity. In the six years to the end of 1905 the Helen Mine raised and shipped upwards of 1,100,000 tons of ore.

The ore produced at the Helen Mine, and also at the Breitung and Williams properties, near Sault Ste. Marie, is hematite, while magnetite is raised from the Radnor Mine, in Renfrew County, which is owned by the Canada Iron Furnace Company, and was the only steady producer in 1905 in the eastern part of the province. It was anticipated that about 5,000 tons of ore would be shipped during last year. The ore running from 48 to 50 per cent. of iron is shipped, while the lower-grade material is stock-piled, and a large quantity of this lower-grade ore is available, and could be economically treated by magnetic concentration. The ore found at the Atikoken Mine is also a magnetite, and in some places is associated with pyrrhotite to an extent which necessitates it being roasted before smelting. Prospecting for iron ores continues to be steadily prosecuted from year to year, and it is calculated that the total output of the iron mines of Ontario from 1869 down to the end of 1905 amounted to 1,825,764 tons, having a value of 3,120,794 dollars.

Iron deposits do not, curiously enough, figure on a commercial scale in British Columbia, a Province otherwise so richly endowed, so far as is at present known ; and in the North-West Territory, while clay ironstone occurs in many districts, no developments in this direction are likely to take place in the near future. For the rest, I need only add that it must be obvious to any intelligent investigator that in her iron deposits Canada has a source of prospective wealth the importance of which cannot easily be over-estimated.

CONCLUSIONS :

That Coal and Iron remain two of Canada's [most valuable material resources.

That Canada's importance as a Coal-producing country is as yet only in its infancy, Nova Scotia alone possessing great Coal-fields.

That Canada's prospects as an Iron-producing country are equally promising, and, with her rapidly developing Engineering Industries, are calculated to make for a great and prosperous future.

CHAPTER III.

COPPER, NICKEL, AND MISCELLANEOUS MINERALS.

COPPER PRODUCTION IN CANADA.—COPPER AND NICKEL MINING IN THE SUDBURY DISTRICT.—THE COBALT DISTRICT AND THE OUTPUT OF COBALT.—THE DISTRIBUTION OF MISCELLANEOUS MINERALS THROUGHOUT THE DOMINION.—THE STATISTICS OF CANADIAN MINERAL PRODUCTION AND EXPORTATION.—CANADIAN MINING LAWS.

ALTHOUGH gold and silver, coal and iron occupy respectively places of dominating prominence in the gamut of Canadian minerals, there are others of importance which it would be absurd to ignore in a survey such as I am making. There are, for example, copper, nickel, cobalt and other mineral deposits existent throughout the Dominion, the development of which will contribute materially towards the advance of the tide of prosperity. Copper, for example, occupies a position of the greatest significance amongst the metallurgical products of the Canadian mines. It is produced in Ontario and Quebec, but even more largely in British Columbia—which still maintains pre-eminence as a Canadian copper-producing Province—and most ordinarily in conjunction with gold and nickel.

In Ontario the Sudbury district has for many years past been almost the exclusive source of the production of copper and nickel in that province. Mining developments in the Sudbury district were, however, I think, anticipated by operations carried on by the West Canada Copper Company on the north shore of Lake Huron, about 30 miles to the east of Sault Ste. Marie. The ores consisted of sulphides of copper, contained in large fissure veins, which penetrated the Huronian rock of the district, and extensive underground workings were developed to exploit the ore, which was milled on the spot, and afterwards shipped to England for smelting. As the result, however, of the decline in the price of copper which took place about then, together with other circumstances, the mines were closed in 1876, although they have since been reopened, and

operations pushed forward with a good deal of activity. Mines, however, to-day are few, although prospects are numerous. A copper smelter is one of the greatest wants of the district, as its provision would enable a market to be secured for much of the ore the utilisation of which is not at present practicable by reason of the heavy cost of transportation.

Numerous discoveries of copper sulphide ores have been made from time to time in Ontario, but comparatively little has been done in the way of developing them, although I understand a good deal is likely to take place in this way before long, and production is even now increasing both in Ontario and Quebec, where copper prospects are improving. Attention has also been given to detached areas of rock carrying native copper similar to that which is so well-known on the American shore of Lake Superior, and large plants have been laid down, although nothing approaching a permanent basis of production has been attained. It is plain, however, that with a favourable market there is every inducement for the encouragement of the copper-mining industry in Canada on a large scale. I notice, for example, that one of the newer and most promising concerns, the Copper Mining and Smelting Company of Ontario, Limited, is making satisfactory progress, and hopes to reduce 30,000 tons of mineral during the present year. This company, which took over the Bruce mines, wherein the lodes were formerly regarded as large and promising, has not yet a smelter of its own, but for the present its mineral will be treated for it by the Lake Superior Power and Rolling Mills Corporation, Limited, of Sault Ste. Marie.

But as matters stand at present one must look to Sudbury if one desires to see copper and nickel mining operations on a large commercial scale in the Eastern half of the Dominion. There it was that the Canadian Copper Company commenced work in 1886, and now, 21 years later, work is still being conducted there on an extensive scale. I hear that over a thousand men are ordinarily employed. The plants at present in operation at Sudbury smelt the ores by heap-roasting and Bessemer matting.

In Nova Scotia the occurrence of copper, found in the native state in association with the trap-rocks of the Bay of Fundy, was known even to the early explorers of that region, but the attention of practical miners was only attracted to the copper deposits in this province during the past twenty-five or thirty years. The ores are usually copper pyrites, and they have been found in Cape Breton Island and also at Coxheath, near Sydney; but little has been done in the Province in the way of exploiting the metal, except, I believe, at Pictou, where a smelting plant was erected a few years ago.

But, so far as copper and nickel mining is concerned, one must look for its most complete exemplification to the Sudbury enterprises already mentioned. Ordinarily, the ores occur in extensive though irregular deposits, and combine a mixture of pyrrhotite and chalcopyrite in rocks of the Huronian system. The ore varies in metalliferous value from $1\frac{3}{4}$ to 4 per cent. of copper, and about $1\frac{1}{2}$ to $4\frac{1}{2}$ per cent. of nickel. The product shipped usually consists, I am told, of a matte which comprises on an average 25 per cent. of copper and 18 per cent. of nickel. When recourse is had to the expedient of Bessemerising, the result comes out about 40 per cent. of copper and 40 per cent. of nickel, the matte also carrying small percentages of other constituents, such as platinum, palladium and cobalt. The importance of the Sudbury enterprises may be understood when I say that they produce about half the nickel which the world consumes. At the same time the United States absorb most of the Sudbury matte, extraction and refining operations being conducted in that country. The sole producers are, I believe, the Canadian Copper Company, who have a fine plant at Copper Cliff, and the Mond Nickel Company, which latter concern exports its product to Wales.

The following official figures represent the aggregate results of operations in connection with the nickel-copper deposits of Ontario for 1906 :—

| | | | | | | Tons of 2,000 lbs. |
|-------------------------------------|----|----|----|----|----|-----------------------|
| Ore mined | .. | .. | .. | .. | .. | 343,814 |
| Ore smelted | .. | .. | .. | .. | .. | 340,059 |
| Matte produced | .. | .. | .. | .. | .. | 20,364 |
| Matte shipped | .. | .. | .. | .. | .. | 20,310 |
| Copper contents of matte shipped .. | .. | .. | .. | .. | .. | 5,264.6 |
| Nickel contents of matte shipped .. | .. | .. | .. | .. | .. | 10,745 |
| Spot value of matte shipped | .. | .. | .. | .. | .. | \$4,629,011 |

The Canadian Customs returns show that the exports of nickel in matte, &c., amounted in 1906 to 23,969,336 lbs., all of which quantity (with the exception of 2,716,892 lbs., which was absorbed by Great Britain) was shipped to the United States, where, as I previously mentioned, extraction and refining take place on a large scale. The total production of copper in Canada in 1905 amounted to 47,597,502 lbs., valued at 7,420,451 dollars, and in 1906 to 57,029,231 lbs., valued at 10,994,095 dollars; and of nickel—that is, the nickel contents of the ore, matte, &c.,—18,876,315 lbs., valued at 7,550,526 dollars, in 1905, and 21,490,955 lbs., valued at 8,948,834 dollars, in 1906.

And now just a word about cobalt, as the word—signifying the locality, however, rather than the mineral—looms large in the Canadian eye at present. It is unquestionably their great

richness in silver which gives the deposits at Cobalt their especial significance, but their association with the local arsenide ores is a matter of no small commercial importance, although, under existing conditions, the supply of the metal would really be in excess of industrial requirements. Some of these ores contain from 4 to 7 per cent. of nickel, in addition to silver, cobalt and arsenic. But the nickel output of the Cobalt district is not, so far, included in the nickel figures for Ontario as a whole which I have given. Altogether it seems that cobalt alone to the value of about 100,000 dollars was raised in Canada during 1905, and, *plus* zinc and other metallic products, of about 350,000 dollars in 1906. I see that the Report for 1906 of the Ontario Bureau of Mines states that Mr. Thomas A. Edison, the famous electrician, of Orange, New Jersey, acquired a location near Trout Lake for development last year, it being understood that he has perfected a new storage battery in which cobalt will be employed as one of the electrodes for generating electric current.

I must now in the briefest way refer to the more miscellaneous mineral productions of the Dominion, province by province. Taking Quebec first, it is found that, with regard to certain important minerals, notably graphite, apatite (phosphate) and asbestos, it takes first rank in Canada. The productions of its asbestos mines have, indeed, largely controlled the world's market for that fibrous mineral. The mines and mills have been especially active during the past year, and I hear that important extensions and additions to existing plant are about to be made. Of mica, too—so important an auxiliary in connection with the electrical industries—the deposits are very extensive. These are found chiefly in the region north of Ottawa River, and in the neighbourhoods of the Gatineau and Lièvre Rivers. In some cases mica and apatite are found in combination and produced in economic quantities from the same mine.

Then more or less important deposits of molybdenite, ochres, magnesite and felspar are met with in various parts of the Province, while granites, both red and grey, marbles and other building stones, lime, clays and cement occur in large quantities in different parts of the province. Slate quarries are worked in Eastern Quebec, and peat of first-rate quality is met with along the St. Lawrence above Montreal. Petroleum occurs in the Gaspé Peninsula, and large quantities of mineral waters are bottled at the springs in Quebec.

Ontario is not less abundantly endowed with a variety of minerals than her sister province. Especially rich is Ontario in structural minerals and clay products. These, with petroleum, constitute more than 50 per cent. of the entire mineral productions of the Province. The exploitation of petroleum in Ontario date

back to its discovery in 1860, and the chief centres of oil production are at Petrolia and Oil Springs in Lambton County, the oil-bearing strata being reached by holes drilled to a depth of from 300 to 500 ft., until the coniferous limestone is encountered. Natural gas was discovered in Ontario in 1889, and the two principal fields in which wells have been sunk are in Essex and Welland Counties, whence much of the gas is piped to the adjacent cities over the United States border. Gypsum has long been worked alongside the Grand River, and graphite is mined in Renfrew County. Mica is produced in the eastern part of the Province, and finds a ready market for electrical purposes. Apatite and corundum are also there; and chief amongst the building stones are granites, gneisses and sandstones. Limestones, clays and shales are abundant.

British Columbia is the principal source whence lead is produced in Canada, much of it being extracted from the argentiferous galena ores met with throughout the Province. Mercury has also been produced in limited quantities there, but as I have previously indicated, the mineral wealth of British Columbia mainly resides in her deposits of gold, silver, copper and coal. Nevertheless, increasing attention is being devoted to her zinc ores, which were long regarded as detrimental rather than encouraging to the mineral prosperity of the province. Matters are looking well for the zinc product of the ores of East and West Kootenay, which are now being worked on a considerable scale, especially in the case of the East Kootenay mines at St. Eugene, which were enabled to ship largely during last year. The concentration of the zinc ores in British Columbia has met with success, and a large smelter at Frank, in Alberta, provisionally commenced smelting operations in June last year.

In Nova Scotia ores of manganese occur in several instances in workable quantities, and antimony is met with in the form of stibnite, or sulphide of antimony. In various parts of the Province gypsum occurs in very large quantities, many of the beds running to a thickness of 50 ft. Most of this mineral raised is exported in the crude state to the United States, and it is understood there was a considerable increase in the output in 1906. Sandstones of a kind suitable for building purposes or the manufacture of grindstones and scythe-stones are obtained in the province, and there are noteworthy occurrences also of granite, marble, clay, slates and plumbago.

Gypsum again occurs very largely in New Brunswick, as do also sandstones and other structural minerals and clays. At one time manganese and albertite were the most important minerals mined in the province, but their production has greatly diminished in significance. There are also deposits of the ores

of antimony, and of nickeliferous pyrrhotite and graphite, while salt springs and springs of mineral waters, in which considerable trade is carried on, occur in various parts of the Province.

Of the miscellaneous minerals which the North-West Territories possess too little is yet known to make such information as I could give wholly reliable. I should mention here, however, that much attention is being attracted to the cement industry. The production of rock cement has greatly declined, but on the other hand the manufacture of Portland cement is vigorously on the ascendant, as will be indicated in a subsequent chapter in which I describe a new cement undertaking in the Rocky Mountains.

In order to indicate at a glance and comparatively the extent and commercial importance of the metallic and non-metallic products of the Canadian mines, I have compiled the following tabular statement, which shows the values of production of the principal metals and minerals for the years 1905 and 1906, from the Canadian Government returns for those years :

| Product. | Value of Product, 1905. | Value of Product, 1906. |
|---|-------------------------------|-------------------------------|
| | Dollars. | Dollars. |
| Gold | 14,486,833 | 12,023,932 |
| Silver | 3,605,957 | 5,723,097 |
| Copper | 7,420,451 | 10,994,095 |
| Nickel | 7,550,526 | 8,948,834 |
| Lead | 2,634,084 | 3,066,094 |
| Cobalt, Zinc, etc. | 100,000 | 350,000 |
| Coal | 17,658,615 | 19,945,032 |
| Iron ore (exports) | — | 149,177 |
| Asbestos | 1,486,359 | 1,970,878 |
| Gypsum | 581,543 | 591,828 |
| Mica (exports) | 168,043 | 581,919 |
| Natural Gas, Sales of | 314,249 | 528,868 |
| Petroleum (approximate) | 849,687 | 761,760 |
| Cement, Natural rock | 10,274 | 6,052 |
| „ Portland | 1,913,740 | 3,164,807 |
| Salt | 310,858 | 327,150 |
| Building Materials, including Stone, Bricks, Lime, &c. | 6,095,000 | 7,200,000 |

Compressing a general summary of the mineral position in Canada to the lowest space limit, let me say, briefly, that the mineral production of the Dominion during 1906 aggregated in value to over 80 million dollars, which is the highest production on record, the next highest being 68½ million dollars in 1905. In 1899 it was valued at 49½ million dollars, and in 1890 at over 16 million dollars. During 1906 the net increase in the production of

metallic and other minerals was 10,474,878 dollars, the greatest individual advance being in the production of copper, the increase in value being 3,496,435 dollars, and the next in coal, to the value of 2,424,769 dollars. The increase in silver was 2,105,422 dollars, in nickel 1,398,308 dollars, and in Portland cement 1,251,067 dollars. The only serious set-back was in the Yukon placer gold production, which decreased to the extent of 2,727,200 dollars. So that, approximately, we get a total increase in the mineral production for 1906 of about 15 per cent.

The following table, the figures contained in which are official, serves to give some idea of the relative importance of the principal mineral products of Canada :—

| | | | | Per cent. of total mineral production of Canada. | |
|---------------------------------|----|----|----|--|-------|
| | | | | 1905. | 1906. |
| Coal | .. | .. | .. | 25.20 | 24.93 |
| Gold | .. | .. | .. | 21.01 | 15.03 |
| Brick, stone and lime | .. | .. | .. | 9.37 | 8.00 |
| Copper | .. | .. | .. | 10.78 | 13.74 |
| Nickel | .. | .. | .. | 10.86 | 11.19 |
| Silver | .. | .. | .. | 5.20 | 7.15 |
| Lead | .. | .. | .. | 3.85 | 3.83 |
| Cement | .. | .. | .. | 2.75 | 3.96 |
| Asbestos | .. | .. | .. | 2.16 | 2.49 |
| Pig-iron (from Canadian ore) .. | .. | .. | .. | 1.74 | 2.16 |
| Petroleum | .. | .. | .. | 1.23 | .95 |
| Gypsum | .. | .. | .. | .84 | .74 |

The various facts and figures I am able to submit will serve to indicate, if they do nothing more practical, that the mineral resources of Canada are lacking neither in volume, variety nor width of distribution. The most important metallic and non-metallic minerals of commerce are more or less abundantly represented, and hitherto, although in most cases as yet in the infancy of their development, they have been to some extent, successfully exploited. The scope for future development which is offered is beyond question, and the mining laws of the Dominion are of the most fair and equitable character. It was stated at a meeting of the Copper Mining and Smelting Company of Ontario, Limited, recently held in London, that the Canadian Minister of Mines had introduced a Bill, which was before Parliament, under which the Government propose to set aside a certain amount of revenue annually for distribution as a bonus, as to 1 cent per lb. upon 95 per cent. blister copper and 3 cents upon refined copper. This should have a stimulating effect upon the copper mining and smelting interests of the Dominion, and if something of the same kind were extended to other branches of Canadian mining and metallurgical industry the effect would be eminently beneficial.

CONCLUSIONS :

That Canada's Mineral Resources are prodigious.

That their full extent and value are as yet but incompletely realised.

That with increasing population and the judicious employment of Canadian and British capital in proving and developing really valuable properties, and by learning lessons from older Colonies, Canada gives promise of being one of the world's greatest mining countries.

That, with an intelligent appreciation of the course of events in developing Canadian Mineral Resources, the British investor may consider the principal mining enterprises of the Dominion well worthy of his consideration.

CHAPTER IV.

THE MINES OF COBALT.

A WONDERFUL MINING CAMP.—THE COBALT TOWNSITE MINE.—
THE VEINS AND THEIR VALUES.—THE SHIPPING MINES
IN THE COBALT FIELD.—SOME OF THE WONDERS OF THE
COBALT CAMP.—COBALT PROBABLY THE RICHEST SILVER
CAMP IN THE WORLD.

WHEN I set out for Canada I meant to visit Cobalt, but the silver camp had not then quite attained the great importance it has since assumed, or claimed so much attention from investors here. I went as an observer, not as an expert, for though I have, of course, long kept in touch with mining progress everywhere, I must disclaim all right to speak as one with practical mining experience. At Cobalt I inspected mines sufficiently developed to permit of some idea being formed of the prospects that the field presents. Amongst them were the famous Nipissing, La Rose, McKinley-Darragh, Buffalo and University mines. And there also I made acquaintance with the Cobalt Townsite, which, I found on my return to this country, was exciting great interest in London, Paris and elsewhere, as well as on the other side.

When one comes to consider it all in cold print, it seems almost incredible that Cobalt, as a known mining field, did not exist four years ago. Its unnamed site was unvisited except by lumbermen, and it was not even touched by railway communication until the October of 1904. The discovery of its mineral wealth was primarily due to two lumbermen, named McKinley and Darragh, and a blacksmith named La Rose, who, in July, 1903, stumbled upon the outcrop of a rich vein on the southern shore of Long Lake, now known as Lake Cobalt. They had no appreciation of the true value of their lucky find at the time, but this came later, to their substantial satisfaction, and their names are perpetuated in identification with two shipping and dividend-paying mines on the field.

The short life-story of Cobalt is, indeed, replete with little romances such as invariably hinge upon rich mineral discoveries

in unsuspected neighbourhoods. An early prospector in the field wanted to sell his claim for 25,000 dollars, but could find no buyer. The owner spent 400 dollars on his property, with the result that 1,000,000 dollars was brought into sight. Again, a man offered to sell his property at Cobalt for 100,000 dollars, but his offer was rejected. Ninety days afterwards the fortunate owner had the satisfaction of receiving a cheque for 100,000 dollars, in payment for ore which he had mined in the meantime with a crew of six or eight men ! Another case : Mr. George B. Wyllie, the travelling passenger agent at Buffalo of the Illinois Central Railway Company, having been one of the Canadian militiamen who, forty years ago, took part in disputing the advance of the invading Fenian Army, was rewarded by the Canadian Government with a grant of 160 acres. He selected a site in the township of Ingram, Ontario, a few miles distant from the new



VIEW IN THE COBALT DISTRICT.

silver camp. Last summer he took his brothers and a couple of nephews to Cobalt, and, working with picks and shovels, they uncovered a piece of silver the size of a man's head !

La Rose, on the other hand, owed his discovery to a "fluke." In the vernacular of the camp, he "stubbed" his toe on a silver slab and discovered La Rose Mine. Another version is that "being at his forge one day, near the Southern end of Cobalt Lake, he saw a red fox near by in the bush, and threw his hammer at it—parenthetically he remarked, without damage to the fox. On going to recover his hammer, he noticed that it had bruised a rock, and that the bruise gave a bright metallic streak,

which the blacksmith supposed was due to lead. Subsequent investigation by some of the officials led to a sample being sent to Toronto, where a remarkably high yield of silver was 'disclosed.' " And there you are: the old story of mining fortune over again, for, as they say down in Cornwall, "where 'tis, there 'tis."

But this, of course, is anticipating my visit to Cobalt. What I saw at Cobalt Camp when I was there towards the end of last year was an area containing twenty shipping mines or thereabouts, which, opened partially, were still in the early stages of development—quite primitive, indeed, with few quite up-to-date appliances. But these mines had already shipped large quantities of the richest silver ore to be found in any part of the world to-day. I examined trenches only eighteen inches deep, with veins of



ORDERED CHAOS IN COBALT.

highly-mineralised ore a foot wide. I clambered down into open workings a few yards deep to see broad veins which literally glistened, on friction being applied, with the silver they contained. Here and there were "leaves" of silver which had been formed in Nature's smelting-pot. With my own hands I twisted some of these away from their hold, in the same way as one would tear a piece of soft, malleable lead.

In various mines lumps of ore were broken and handed me for inspection, which left me in doubt whether they contained more stone or silver. At the various ore-houses were rows upon rows of barrels filled, or waiting to be filled, with the products of the mine. So rich was the ore being mined that the managements hesitated to trust it to the care of mere sacks. I have said

that I am no mining expert ; but no special knowledge was required to show that there were millions of tons of highly-mineralised ore exposed to view, and that, so far, only a small percentage of the proved area was in any advanced stage of development. One expects optimism in a mining camp; one is prepared for exaggeration; and one is not surprised if downright mendacity is met with very frequently. But at Cobalt it seemed almost impossible to exaggerate: the riches were so palpably there; any urchin in the street could unerringly take the stranger to half-a-dozen mines and point to wonders which fairly beggar description.

Investigation showed that the richness of the rock is not a surface indication only. Some of the mines are down over a



COBALT IN THE MAKING.

hundred feet, and one is down 300 feet. And in the majority of instances not only is the ore richer at depth, but the veins widen out. So strange, so entirely new, are all the geological conditions that no expert, however eminent or experienced, can with certainty say what there is in store; but all the indications point to an all-round improvement in depth. Frankly and unreservedly, I was amazed with all I saw. I would not have missed my visit to this wonderful region for any possible consideration.

Of course, up to the present time the mines which are producing the great results are bunched within a comparatively small area, and the question arises whether further prospecting will not show

that the outlying regions are not equally rich. Personally my view on such a subject is, of course, valueless ; but I certainly could not detect any difference in the appearance of the country thirty miles from Cobalt. Generally, it appeared to consist of rocks indiscriminately thrown about and covered with a light layer of soil.

On returning to England I heard that north of Cobalt there had been discoveries of the greatest possible value. Fifteen miles north of Cobalt is the Casey Cobalt mine, which had a shaft sunk some 45 feet down, in which a vein occurs which was yielding from 12 to 33 per cent. of cobalt and 40 per cent. of nickel, the vein being traced for some hundreds of feet. There were, I found, two other veins carrying high silver values. The best assay so far given is 7,000 ounces to the ton. But, from the point of view of the British investor, the most interesting mine in Cobalt Camp at the time of my visit was, perhaps, the Cobalt Townsite, inasmuch as it was up to then the only mine acquired for British capital. I find since my return that particulars already have appeared in sequence to a cable I despatched.

By mining men in Cobalt Camp, when I was there, most sanguine expectations were expressed concerning the bright prospects of the Cobalt Townsite's property. The mine is situated most conveniently to Cobalt's centre and adjacent to properties of wonderful richness, proved to carry the same veins—including the famed Nipissing, the like of which was probably never seen before. Thanks to its advantageous site, and 40 acres which it owns, the Townsite, as its name implies, has land as well as mining prospects. The surface rights it owns should have their value when—and maybe soon—new building sites are in demand, quite near the railway dépôt. That proximity to the railway obviates all heavy cartage charges, and ensures the minimum of transportation cost. The veins increase in number as the weeks pass by, and further searching will most probably reveal still other seams at present hidden from view. Four shafts were being sunk at the time of my visit, and the ore extracted yielded 1,000 dollars and over to the ton on assay.

The Nipissing mine, adjoining, has a very similar formation to the Townsite, and at Block 404, across the lake, less than 600 feet away, are veins which have produced most valuable ore. Block 404 is just opposite the Townsite property, and similar in character, so far as one could see thus early in the latter mine's development. I personally inspected the Buffalo property, which immediately adjoins the Townsite, and it did not require the evidence of the extent of its shipments of ore or the value of silver extracted to prove to me that it was a property

of wonderful value. Indeed, the Townsite mine appeared to be in the very heart of this wonderful silver camp.

The Townsite capital is small compared with that of other Cobalt mines—namely, 1,000,000 dollars—so the greater probability there seems to be of handsome dividends for shareholders. The Cobalt Townsite Silver Mining Company had its origin where Temiskaming properties should be best understood—namely, in Toronto, which is now linked by railway with Cobalt. If men of standing and repute, who, living in Ontario themselves, are able to discriminate, have proved their belief in Cobalt Townsite's prospects, then the proposition is well worth consideration here. The Canadian directors of the Cobalt Townsite are such



ENTRANCE TO ONE OF THE COBALT MINES.

men. The London board includes Lord Armstrong, Colonel Sir Augustus FitzGeorge and Mr. John Mackay, who is also the president in Canada. The Nipissing, when bought by its proprietors, was not so well developed as the Townsite is to-day. Need one say more in evidence of what may be in store?

So far anticipations have been fully realised, and since the registration of the Cobalt Townsite Mining Company took place in England the news received has been consistently favourable. Ore obtained has yielded by assay as much as 1,000 dollars to the ton, and the £1 shares have been quoted at about 3 on the London Stock Exchange, the Townsite being the first Cobalt property to be listed on any Stock Exchange. Since shipments from the mine began in the current year, these amounted, up to April 6th, to 90,160 lbs., the smelters' return in one instance

being certified at 449 ounces of silver per ton of 2,000 lbs. and $3\frac{1}{2}$ per cent. of cobalt. The Cobalt Townsite machinery was started on March 18th, and the manager reported by cable that all was going well. About three weeks later the Toronto newspapers reported that one drill was working in the day and two at night.

The town of Cobalt consists of a number of wooden houses, built apparently with little or no idea of regularity or order in the midst of a partially-cleared forest. The largest and most pretentious building is that of the Prospect Hotel, which also seemed to serve the purpose of a local Stock Exchange. Among the other wooden buildings is the very commodious and smart-looking edifice erected by the Canadian Bank of Commerce. This



THE PROSPECT HOTEL, COBALT.

building, I heard, had been bodily transported in sections from a town hundreds of miles away, immediately the importance of the camp became known. Cobalt can even boast an opera-house now! At present it is estimated that Cobalt has a population of about 4,000, but probably the actual figures will be greater than these, as since the end of the winter new-comers have been pouring in from all parts. The reports of the Temiskaming and Northern Ontario Railway show that 34,262 passengers were carried over that line in March of this year, as compared with 15,648 in the corresponding month of last year. During the last week in March no fewer than 12,920 tickets were purchased.

Facing the town of Cobalt is a small, deep lake. The roads, if it is possible to dignify the rough, hilly highways with this title, are comparatively free from stumps of trees, but in the numerous

openings in all directions the stumps project from a foot to three feet from the ground. Anything more roughly picturesque than the appearance of the town it would be difficult to find, particularly when, as on the occasion of my visit, a covering of snow



A COBALT PROMENADE.

softened, where it did not hide, the more rugged features of the locality. The pathways, where such existed, consisted of rough, corduroyed side-walks.

At the time of my visit there were within the Cobalt area some fourteen shipping mines, and these may be enumerated, with their details, as follows :—

| Company. | Shares out. | Par. | Acre- age. | Cap. per acre. | No. veins. |
|---|----------------|------|---------------|-------------------|---------------|
| | | | | Dols. | |
| Nipissing | 1,200,000 | 5 | 846 | 7,000 | 55 |
| La Rose | 480,000 | 1 | 40 | 12,000 | 7 |
| Trethewey Silver Cobalt .. | 200,000 | 5 | 40 | 25,000 | 6 |
| Coniagas | 300,000 | 1 | 40 | 7,500 | 2 |
| McKinley-Darragh Co. .. | 2,500,000 | 1 | 82 | 30,500 | 4 |
| Buffalo Mines Co. | 1,000,000 | 1 | 40 | 25,000 | 3 |
| Cobalt Silver Queen | 1,500,000 | 1 | 58 | 25,850 | 2 |
| O'Brien Mining Co. (in liquidation) | Close corp. | — | 154 | — | — |
| University Mines | 10,000 | 10 | 56 | 17,850 | 4 |
| Kerr Lake Mining Co. .. | 30,000 | 100 | 52 | 57,700 | 6 |
| Drummond Mining Co. .. | Close corp. | — | 80 | — | 3 |
| White Silver Co. | 1,000 | 100 | 145 | 620 | 3 |
| Foster Cobalt Co. | 1,000,000 | — | 40 | 25,000 | 5 |
| Star Silver Cobalt | 2,000,000 | — | 40 | 50,000 | 2 |

Since my return the list of shipping mines has been increased to twenty-two—the products of some being remarkably rich in silver. There were 35 companies in the Cobalt field which had found veins of ore, and there were, in addition, 93 companies chartered by the Province of Ontario to conduct mining operations, but all these were in the initial stages of development. There is a second group of at least fifteen others that are shipping, or are ready to ship, such as the Silver Queen, Hanson, Nova Scotia, Bailey, Temiskaming, Beaver, Badger, Columbus, and Hudson's Bay.

Capital was pouring in, and has since continued to do so in greatly augmented measure, and it is credibly announced that already quite 250,000,000 dollars have been invested. Quite recently, I learn, a party of French capitalists and mining experts from Paris visited the field with a view to securing a remunerative investment; and, of course, shares of such companies as those controlling the Nipissing, Buffalo, Foster, Silver Queen and Trethewey properties receive attention on the British market.

If, then, the gold production of the Yukon district showed an appreciable shrinkage in 1906, ample compensation was afforded by the new-found riches of the Cobalt field, whose mineral production last year is officially announced to have aggregated in

value to 5,183,300 dollars, as compared with 1,500,000 dollars in 1905, and 136,000 dollars in 1904. And yet, at most, the ground has been little more than scratched! Last year's total was made up of the following mineral constituents:—

| | Quantity. | Value. Dollars. |
|-----------------|------------------|--------------------|
| Silver | 8,616,061 ozs... | 5,015,479 |
| Cobalt | 446 tons.. | 150,779 |
| Nickel | 245 „ .. | 13,467 |
| Arsenic | 1,919 „ .. | 3,596 |

Meanwhile the estimates of Cobalt's 1907 production put the figures at 11,000,000 dollars, Dr. Eugene Haanel, the Government Superintendent of Mines, placing it even higher—at 12,530,100 dollars.

There is one point I wish to make absolutely clear. When I visited Cobalt, the only knowledge I had of the mines there was the name of one or two of the most prominent. I had heard of the Nipissing and of La Rose. I was entirely unacquainted with the capitalisation of these concerns, the prices of their shares, or the character of the men controlling the companies. The only definite and positive information in my possession was that many of the prominent business men of Toronto, who had visited the country, were of opinion that the camp was unique, and was the centre of the richest silver deposits in the world. During the greater part of my stay in Canada I had been in the Far West, and the people there were far too absorbed in the great possibilities of their part of the country to be very much interested in far-away Northern Ontario. In writing, therefore, as I do, of the richness and wonders of Cobalt camp, I wish it to be most distinctly understood that I express no opinion as to the wisdom or otherwise of a purchase of the shares of any of the shipping companies. Such is altogether outside my province.

There has, of course, been a tremendous amount of speculation in the shares of these companies. In many instances prices have been rushed up to very high figures. These may or may not be justified by events. What I am principally concerned with is whether other discoveries will not be made in the district, and the desirability of Canadian or English capitalists taking advantage of these. I am convinced that only by the greatest promptitude and shrewdness will they succeed in doing this, because there are many of the cleverest men in America actually on the spot, with the money in their pockets, ready to snap up any mining claims which may have the promise of yielding good results. What seems to have gone on in the past is that first of all the Canadians, having made the discoveries, sold the results at absurdly low figures to the Americans in their utter

ignorance of the value of the properties. Now the Canadians are buying back at highly-inflated prices many of these very properties, which, as I have said, they had sold to the Americans in the first instance for a mere song.

What may yet be found in the little-known land north of Cobalt is but vaguely apprehended, but there are indications of rich and varied prospects, as is explained in a subsequent chapter. The region indicated is immense, for it stretches to the southern extremity of Hudson's Bay. Pioneers in that lone land have found traces of the precious metals and of gems. More than one scientist of repute is convinced that in the region southward of Hudson's Bay may be found a great new diamond field. Since a region so remote, so near the Arctic, and so difficult of access as the Klondyke has achieved importance as a gold-producer, anything may happen in the much more accessible area north of Cobalt.

But, turning from the vague to the particular—from the conjectural to the reasonably certain—it is now manifest that the Temiskaming region, of which Cobalt is but a spot, is highly mineralised. Quebec, as well as Ontario, is interested, for on both sides of the provincial dividing line discoveries of great promise have been made. Gold, described as occurring in small quartz stringers, has already been found on the Montreal River, near Opitiscata Lake, and now the discovery of a seeming goldfield is reported from the vicinity of the Larder Lake, about 70 miles north of Cobalt, and between the Blanche River and the Quebec-Ontario boundary. A rush there has already started, hundreds of claims have been staked, and more are being sought. The district is reached by wagon-road and trail from the Temiskaming and Northern Ontario Railway. Everything seems to point to the possibility of the silver field of Cobalt being supplemented by a goldfield further north.

CONCLUSIONS :

That Cobalt is not unlikely to prove itself to be the richest silver camp in the world, and is alone worth a journey to Canada to see.

That so far there is reason to believe that the richness will continue at depth, and the most recent discoveries go to justify this conclusion.

That what are wanted in Canada to promote mining and metallurgical activity in the Eastern Provinces are adequate facilities for conducting smelting operations.

CHAPTER V.

THE NIPISSING MINE, COBALT.

A CHAT WITH PROFESSOR HIDDEN, F.G.S.—HIS ANTICIPATIONS WITH REGARD TO THE COBALT FIELD.—A VISIT TO THE NIPISSING PROPERTY.—THE PRINCIPAL VEINS EXAMINED.—RICHNESS PROMISES TO CONTINUE WITH DEPTH.

I HAVE already expressed the opinion, whilst disclaiming any practical or theoretical knowledge of mining, that Cobalt is probably the richest silver camp in the world. This view is founded on what I have actually seen in the various mines—veins ranging from a few inches to several feet in width and carrying a very high percentage of silver and other metals; the extent to which these veins have been proved in all directions; the absence of every indication that the silver is of a pockety character; the richness of the ore which I saw taken out from the mines; the value of the contents of the ore in the various ore-houses; and the quality of the ore ready for shipment.

I was not content with examining the ore taken from the surface workings, but examined the rock as it was brought up from the various parts. In some instances this ore was taken from 50 feet down, and in one other case from 200 feet. This ore was not brought up for my inspection, but was the ordinary rock that was being mined for shipment. In every case it was obvious even to my inexperienced eye that it was highly mineralised. Visiting the ore-houses where the process of hand selection was going on, I found that a heavy percentage of the ore handled was placed in the bags or barrels for treatment, and that the rejected portion in many instances seemed as good as that which I had seen from other mines in different parts of the world considered good enough for the smelter.

On my arrival at Cobalt I was naturally anxious to see as soon as possible the eminent mineralogist, Prof. Hidden, F.G.S. I found that gentleman in what, for want of a better description, I will call the common room of the Prospect Hotel. He proved to be a genial elderly gentleman, who appeared more like an Oxford Don than one whose life had largely been spent in the

rough surroundings of a mining camp. He at once expressed his readiness to show me over the Nipissing property, and to give me all the information in his power.

"First and foremost, I should like," I said, "to know whether you consider all these riches will continue at depth."

"Ah," he replied, "you come to the point very quickly. It may take two or three years to settle that question. All I can say is that similar mines in Saxony have been worked to a depth of from 1,500 to 2,000 feet with profit to their owners."

"You are hopeful that this will be the case here?"

"Yes, I am very sanguine."



ON THE NIPISSING PROPERTY: PROFESSOR HIDDEN (on the left) AND BARRELS OF PICKED SILVER ORE.

"Do you think anything has been yet discovered here equal to the Nipissing?"

"No, no; nothing has been discovered in value approaching our Vein 49—our bonanza. Why, this vein and veins 35 and 27 are equivalent in value to everything yet discovered in the camp."

"All the mines are close together, are they not?" I asked.

"Yes, all the really great discoveries are within an area of about 15 miles by 10."

"Do you think that the country beyond this area will be found to be equally rich?"

"That I cannot say. I do not wish to give any opinion, but the existing mines in the area I have mentioned so far none have been bottomed. All have more or less the same characteristics, the same minerals and the same rock. It is now all a question of depth, depth, depth!"

"Can you tell me the value of the ore so far shipped?"

"We have sent away over two million dollars during the past two years. I estimate that we shall take half-a-million dollars a month out during the winter."

"Can you tell me what are the working costs?"

"Ten per cent. covers everything."

"Have you the mine completely equipped with modern machinery?"

"No, not yet, but we are making arrangements. But come to-morrow and see what we have. You will, I am sure, be interested and astonished."

On the following day, accompanied by Prof. Hidden, I walked over that portion of the Nipissing property which is in course of development. It has a short but interesting story, this Nipissing mine. Early in 1904 five local men formed a syndicate which acquired rights over 846 acres in the heart of the Cobalt field. In the autumn of the same year samples of silver-cobalt-nickel ores from the property were sent to Mr. E. P. Earle, of New York, for examination, and his interest became keenly excited. Subsequently he visited Cobalt, and, after personal investigation, he acquired the properties now controlled by the Nipissing Mines Company, of which he is president. This company now owns more than 95 per cent. of the capital stock of the Nipissing Mining Company, and was originally registered, under the laws of the Dominion of Canada, with a capital of 12,000,000 dollars in five-dollar shares. Shares to the value of 6,000,000 dollars have been issued, and 20 per cent. dividends have been paid in quarterly distributions upon the paid-up capital. More recently the nominal capital has been reduced by one-half. The Nipissing is much the largest holding in the Cobalt district, and has been the leading producer of the silver shipped from the field.

On visiting the Nipissing property, Prof. Hidden and I first of all inspected Vein 19. This had produced 500,000 dollars' worth of ore at a cost of 10 per cent. This silver had been taken from 70 feet of its length. To all appearance one was looking at an ugly trench a few feet deep, but closer inspection showed how rich the rock was in metal. I heard that it is the intention to sink down to 500 feet.

Passing from here we arrived at Vein 27. When this was discovered it was considered the most wonderful find in the district, with the exception, perhaps, of Veins 49 and 55 on this property. This vein was open 100 feet in length, and appeared to be 9 inches to 1 foot in width. "This vein," remarked the Professor, "would alone pay a substantial dividend on the whole stock of the company. You are looking at 700,000 dollars' worth of ore at least."

The outcrop, I observed, stood out about 5 feet high. "Were the lumbermen who camped here blind," I asked, "that they could not see this stuff?" "Don't forget," replied the Professor, "that when the lumbermen came on their periodical visits the country was covered with snow."

The next object of interest pointed out was where the Cobalt bloom was first discovered. It was this find which first attracted attention to the district. The outcrop was at least 60 inches. Nowhere in the world, I was assured, was there such a vein. To the best of my remembrance it was numbered 49. From here, I was informed, at the 45-foot mark 11,121 ounces had been taken, at the 50-foot mark 7,323 ounces, at the 55-foot 4,842 ounces, and at the 60 feet 8,702 ounces.

"What is the average?" I asked, and the reply was, "eight thousand ounces to the ton as the ore is knocked down." I had scarcely recovered from this amazing intelligence when a nugget weighing 3,000 lbs. was pointed out, containing 10,000 dollars of silver. It was pear-shaped, and appeared to be about 4 feet by 28 inches. Vein 55 was next inspected. This was uncovered 450 feet, and almost in a whisper I was told that it included No. 49 bonanza.

"Break a piece off with your hand," suggested the Professor. I took hold of a piece of the rock, if rock it could be called, gave it a twist, and in my hand was a piece of ore running not less than 17,000 ounces to the ton. A miner's pick was driven into the wall, and the point entered in the same way as it would have done into a soft piece of lead. It seemed to me that this part of the vein was 18 to 20 inches in width, and it had been uncovered for 450 feet. Passing north-east I came to a cutting about 40 feet deep and 50 feet long. "From here," said my guide, "250,000 dollars have been taken out."

"But what I am interested in for the moment," I replied, "is not so much what you have taken out, but what there is still to come."

"That remains to be seen," he answered, "but I may tell you what we are doing. We are getting on with development work here, so that we can be taking the stuff out during the winter—and it will be good."

But the Professor was still thinking of the bonanza. "That," he murmured again and again, "is the thing; it's worth more than all the other discoveries in Cobalt put together." We then passed Vein 26 in the Keewatin formation. It was open 45 feet long and 55 feet deep, and has produced over 300,000 dollars' worth of silver. I was asked to go down to the bottom, but as I was anxious to record the results of my visit in *The Financier* I preferred to remain on top.

"It is as rich as ever at the bottom," said my enthusiastic friend. "In the middle it is 'white rock,' with masses and strings and plates of silver. At the south end it is rich in nickel, cobalt and silver. In silver it runs over 4,000 ounces, and, as you will see, it is about 9 inches wide." I noticed that a shaft was being sunk on an adjoining vein.

"What do you think will be the output for this month?" I asked.

"It will astonish everybody," was the reply. Since then I have heard that Nipissing in the first week of October shipped fifteen tons of bonanza ore, 90 tons of first-class ore, and 50 tons of second-class ore. The bonanza ore runs from 6,000 to 10,000 ounces to the ton; first-class ore 1,500 to 2,200 ounces to the ton. The value of the ore in the first week was 200,000 dollars, and the second-class ore will pay all operating expenses.

CONCLUSIONS :

That the whole future of the Cobalt Camp rests upon whether the value of the ore continues with depth.

That Professor Hidden, of the Nipissing Mine, confirms this view.

That mines in Saxony, where the geological conditions are similar to those of the Cobalt field, have been profitably worked at depths of 1,500 and 2,000 feet.

That the Nipissing Mine is a splendid property, and the largest—and so far the most productive—in the Cobalt field.

CHAPTER VI.

PROGRESS IN THE COBALT FIELD.

AMERICAN "HUSTLE" v. BRITISH DELIBERATION.—THE AMERICANS PICKING THE PLUMS.—THE BUFFALO MINE.—IMPORTANT DEVELOPMENTS.—GRADING THE ORE.—LOW WORKING COSTS AND LARGE PROFITS.—ENGLAND'S PREMIER COBALT MINING COMPANY, LIMITED.—THE LATEST INTELLIGENCE FULLY JUSTIFIES PREVIOUS ANTICIPATIONS.

I HAVE already expressed the view that the silver mines of Cobalt Camp appear to give promise of becoming the richest in the world; that once the question of the value of the mines at depth had been satisfactorily solved, it was almost impossible to realise the wonderful potentialities of that district; and that so interesting was the camp that to see it was alone well worth a journey to Canada. My visit to Cobalt was made in October last, and at that time La Rose shaft was down 300 feet. There were no indications whatever of any falling off in the value of the ore or the narrowing of the veins. Several other mines were down from 100 to 150 feet, and there was every appearance of the width of the veins and the richness of the ore being retained. Since then it has been reported—I do not know with what truth—that La Rose has been sunk to 500 feet. At that depth the vein is said to be slightly wider, and that there is no falling off in the values. Experience at the other mines—although like depth has not been reached in their cases—has been equally reassuring.

To my mind, therefore, the question of the value of several of the mines at depth has been satisfactorily solved, and it is not unfair to assume that the other mines will have an equally fortunate experience. In other words, the silver is not a mere surface indication. The geological formation of the district is very similar to that of districts in Saxony, where silver has been found and has been worked at a profit, as stated in the last chapter, over 1,000 feet down.

In spite of all that has been written on the subject, I do not believe that the wonderful mineral richness of this district has yet been fully realised in this country. With commendable caution various public men, while admitting the extraordinary value

of the discoveries, feel it necessary to sound notes of warning. Jealous of the good name of Canada, they have been anxious that the country should not be exploited by unscrupulous company promoters, and in their anxiety to effect this praiseworthy purpose they have, I will not say "damned with faint praise," but have perhaps prevented a really true estimate of the values of the discoveries being formed by the public in this country. It should be borne in mind that in Great Britain we are 3,000 odd miles away from Cobalt, while the Americans are practically next door to it. We are apt only to remember the caution conveyed in the words of these high-minded public men, while the Americans, who can see with their own eyes the wealth awaiting development, are eagerly turning their knowledge to account and profiting by their opportunities.

The population of Cobalt is naturally of a most varied character. I spoke to miners from Yukon, Nevada, Australia and South Africa. In the common room at the Prospect Hotel there were men reputed to be New York millionaires, mining engineers from all parts of the world, agents from stockbroking firms of New York and Toronto—all keenly alive to gather the latest information for their principals—and, of course, a number of the local inhabitants. Interviewing some of these latter worthies, I was again and again met with the question, "Why are you Britishers letting the Americans scoop up everything here?"

This naturally induced me to ascertain how it was that the Americans had succeeded in discovering the mineral value of the region. Cobalt and the surrounding country is not an accessible district; it has hitherto been the favourite haunt of Canadian lumbermen, and Government evidence proves that the existence of minerals in the region was not generally known. From the result of my enquiries I came to the conclusion that the Americans first became alive to the value of the district through the fact that in the early days of the discoveries of silver the ore had to be sent to America for smelting purposes, as there were no smelting works available in Canada. Once the value of the deposit became a certainty, it is not surprising that the 'cute Yankees very quickly secured many of the best properties.

Impressed as I was with the wealth of the mines I had the pleasure of inspecting—*i.e.*, the Nipissing, Silver Queen, Buffalo, Foster, University, Jacobs and others—it was not surprising that I directed my enquiries to find if there were any other properties in the known silver zone which were "going cheap." But I very quickly found that everything of proved value had already been secured, that the only things on offer were a number of mines of doubtful value several miles away from the town of Cobalt, and that for these fabulous sums were being asked

Perhaps I should not use the term "doubtful value": what I really wish to convey is that these were properties upon which silver had been discovered, and which had been certified by the Government Surveyor as silver-bearing, but upon which very little development work had been accomplished.

Discussing with the owners of several of these properties, I invariably found that they required a very substantial sum of cash down. I was not in Cobalt for the purpose of buying a silver mine, but had my enquiries shown that there were a number of mines going cheap, I should not have hesitated to cable to this country, conveying that very interesting fact. But to obtain the necessary information it was important to elicit the terms upon which my Cobalt friends were prepared to do



COBALT LAKE.

business. All idea of options was instantly scouted. In effect I was told, "What you English people who come out here always want is 'options.' You then leisurely write home; the 'deal' is considered with still greater leisure in London; a few months are devoted to correspondence; and then, perhaps, the business doesn't come to anything at all. Now, what happens with Americans when they come out here is this: They see a likely proposition, and they put their hands in their pockets and pay for it down on the nail. Now, this is the sort of business we understand."

In the end I was convinced that there was very little chance for new people to do business on advantageous lines in the silver ring of Cobalt itself, but that, in view of the similarity of the geological conditions miles away to the north and to the north-west,

there was ample justification for the despatch of prospecting expeditions, and, from all I have heard since my return, immediately the winter conditions were modified a number of these expeditions started, and many of these are being run with British capital. Before I left several properties in the directions I have indicated had already been secured by various syndicates. These properties were locally reported to be as rich as anything Cobalt itself could offer.

Since my return the Lake of Cobalt itself has been acquired by a Canadian syndicate from the Government for a sum of 1,000,000 dollars. This lake runs parallel with the railway. On the south-eastern side of the lake the Nipissing property stretches the whole length. At the north-eastern end La Rose is situated, at the south-western the McKinley, and on the north-western shore there is the town of Cobalt itself. On this side the Buffalo, Townsite, Trethewey and other shipping mines are clustered close to the littoral of the lake. Already, I believe, a small shipment of high-grade ore from the bed of the lake has been made to the smelters.

In my last chapter I gave a description of my visit to the famous Nipissing mine. I selected that property because it is unquestionably the largest and the richest in the Cobalt district. I now propose to give the results of my investigation of the Buffalo property. My reasons for giving a detailed account of this mine are several. These are that unquestionably it is one of the most conservatively managed mines in the district; that there are evidences on all sides that the mine is being opened up in a thoroughly scientific manner; that the buildings and equipment of the mine are among the best on the field; and, finally, that the results already achieved and the prospects for the future stamp the property as one of the best mines in the Cobalt silver belt.

The Buffalo Company possesses 40 acres right in the town of Cobalt itself. The authorised capital is £200,000. The company started serious mining work on May 10th, 1906, and between that date and the end of January had shipped 1,290 tons of ore. This ore was of so rich a character that it enabled the company to pay two dividends at the rate of 12 per cent. per annum, and at the present time the company has a substantial reserve of capital for future development. The cost of the machinery has been entirely written off, and stands in the books as *nil*. In fact, the principle adopted appears to have been to charge the cost of the buildings and machinery to the ton of ore in the same way as the cost for development has been debited.

On the occasion of my visit I found that the mine was equipped with six drill-ram compressors, and I understand

that by May of this year six more will have been installed. There is a fine hoisting plant, and a crusher which helps materially in maintaining a uniform grade. The other buildings include a power-house, blacksmith's shop, stables, sleeping accommodation for employees, office and machine shop. All the buildings on the property are of the most convenient and substantial character, and the works in progress appear to have been designed with intelligence and foresight. But what chiefly impressed me was that the efforts of the management did not appear to be directed to obtaining sensational results, but to carefully and scientifically opening that part of the mine which had been duly prospected. Roughly speaking, this did not seem to me more than about a quarter of the property.

In October the principal shaft, described as the No. 6 vein shaft, had been sunk down to about 90 feet. Since then I believe it has been lowered to a depth of 130 feet or more. At the 70-foot level development work had been pushed rapidly forward, and up to the present time I believe 300 feet have been driven on the vein. No. 5 shaft is down to the first level at 85 feet, at which point it intersected No. 5 vein directly below the open-cut, and the level has been driven 52 feet in good ore. While the shaft was being sunk what seemed to be another vein going east and west was passed through, which was, however, left until the shaft had reached the first level, when a cross-cut was put in, and another vein was struck (termed No. 5 new vein) of extreme richness. So far this has been driven on for 62 feet, and its high percentage of values has been maintained.

It is not possible to gauge the possibilities of this strike, for in direct line between it and the boundary, which is 1,000 feet away, veins have been proved by cross-cuts. Whether any of these are a continuation of this vein must remain to be seen. I was shown several veins, all of which were heavily impregnated with silver. Amongst these were the No. 4 Junior lode, which really had a wonderful showing. It was about 2 feet wide, and had a core of rich native silver on each side of the vein, and the whole 2 feet was impregnated with leaf silver. It looked to me very much as if this were one of the best veins on the property. This shaft will serve to develop Nos. 4 and 5 and possibly No. 8 veins. Already, from a very small hole, ore to the value of £11,000 has been extracted. This level will be driven on as soon as the shaft gets down.

Altogether the management have now driven on 900 feet of ore. The average silver contained in this ore is about 650 ounces per ton, which gives a return of £86 per ton. As I have said, the policy of the management has not been to "pick the eyes" of the mine out, but to systematically open up the property and deal

with the ore as it comes. There are three grades of ore shipped from the Buffalo : the first grade consisting of anything running from £140 to £1,000 per ton, the second from £40 to £140 per ton, and the third consisting of ore from £20 to £40 per ton. All ore below this value is kept on the ore dump, awaiting the construction of the company's own mills.

All the ore is hand-sorted. It struck me that the process was one of the most systematic I had seen in the Cobalt district. The ore is dumped on the tables, where water is applied, and the fine stuff washed into the tanks. The remaining portion is separated into four lots, according to the combination of silver with the other metals. The native and leaf silver was made into one grade, while the bulk of the ore, which contained silver and cobalt, was put into another heap, and the low-grade ore was kept quite distinct. I was informed by the management that ore as low as the 66-dollar grade can be shipped at a profit, but it is cheaper to hold it until the mill is constructed, when it can be made into the 200-dollar product.

Passing through the property, I saw a lead of decomposed smaltine, which was of so soft a character that I gathered a handful in the same way one could pick up a handful of rich soil. I was informed that it assayed about 2,000 ounces of silver to the ton. Recently a new discovery had been made on the property, from which very great results were anticipated. I should have said that in No. 6 lode no bright silver is evident. It seems to consist entirely of sulphide. The specimens shown me contained 85 per cent. of silver, and it was possible to cut it just as one would soft lead.

I noticed that the ore on the dump amounted to several thousands of tons. This ore will, no doubt, be passed through the mill as soon as the company has erected one on its own property. At present most of the shipments of ore have been made to the Canadian Copper Company, at Sudbury, Ontario, and to smelting works at New Jersey, where the company is paid for the cobalt as well as for the silver. The Buffalo mine differs from the majority of the Cobalt properties, inasmuch as it possesses a uniform grade of cobalt ore which can be marketed.

So far I have not dealt with the actual cost of working. I almost fear to give these figures, as they appear nearly incredible. I believe it is beyond question that the actual cost is under £9 per ton. It will therefore be seen that, as the average silver contents of the ore shipped has amounted to 650 ounces to the ton, the net profit is at least £77 per ton. I believe that the cost of working at the Buffalo is less than at the great majority of the mines, so perhaps it would not be safe to conclude that the cost of working at this mine is a fair criterion of the general cost of mining in the district.

With such figures before one it is impossible not to be greatly impressed, for what other mining field offers such possibilities? Comparisons are odious, but when one considers what enormous sums of money English investors have sunk in the Transvaal and in Rhodesia in mines at a high premium, with no possibilities of a dividend for many years—and then only a very small one—is it surprising that the Canadians are now turning a great deal of their attention to the mines in Cobalt, and have invested, and are investing, large sums of money in the various properties there? Of course, for the next year or so the glamour of the rich mines will keep the excitement up. It is not, however, always the richest mine that gives the greatest return, but the one that keeps up a regular average output, and it is of such a sort the Buffalo promises to be.

It is only fair to say a word of praise in regard to Mr. T. R. Jones, the general superintendent, for the admirable way in which the mine has been opened up is entirely due to his advice. I have reason to believe that in Cobalt itself his reputation as a practical, scientific miner ranks very high indeed.

Very recently the England's Premier Cobalt Mining Company, Limited, has been floated in London. I have obtained the following official particulars in reference to this company:

"The property acquired by the company is most favourably situated in the Cobalt (Portage Bay) district, on a section seemingly as rich as the famous mines in the centre of Cobalt itself. Two of the mines adjoining the Premier—namely, the Steindler and the Edison—are held by close corporations, which keep would-be participators at arm's length, both as regards investment and the disclosure of information. Well satisfied with their own good fortune, they are not disposed to let others share. A third neighbour is the Imperial Silver Mining Company, which owns the Evans mine, where impressively good discoveries have been made, these including a 6-inch vein of cobalt and silver.

"In close proximity to the Premier are the Buffalo, Silver Queen and Hudson's Bay properties. A great deal of development work has been done. Two shafts have been sunk, considerable stripping has been effected, and several veins have been located which show high-grade values. Unselected fair samples of ore showed 321, 562 and 900 ounces to the ton on assay. On the adjoining property, where identical conditions seemingly exist, average assays show over 3,000 ounces of silver to the ton. It is fair to presume, therefore, that the equal richness of the Premier will be proved when further development work has been done."

Before concluding this chapter it may not be uninteresting to quote the estimate formed of the prospects of the Cobalt field

as the result of a visit paid thereto by Sir Edward Paulet Stracey of whom a portrait appears on page 461), of the well-known firm of Messrs. Sperling & Co. Sir Edward's views were originally embodied in an interview, a report of which appeared in *The Financier* in February last. Disclaiming all title to be considered a mining expert, Sir Edward expressed himself thus :

"It is easy to understand that people who have not visited Cobalt may feel somewhat sceptical as to the amount of credence which may be attached to the stories which assail one's ears from all sides regarding the wealth of its mines. These tales of fabulous richness, one is apt to think, may have a great part of their origin in the desire to snare the unwary, but all such doubts are speedily dispelled on making personal acquaintance with this two-year-old camp, the wealth of which really baffles all description. Pure silver nuggets and veins of silver ore, running thousands of feet laterally, hundreds of feet deep and two to ten inches in width, and showing 75 and even 90 per cent. silver per ton, form an ocular demonstration of the wealth and permanence of the camp which suffice to convince the doubter without seeking expert corroboration.

"Already a vast tract of country has been proved to be highly mineralised, stretching from Sudbury, Ontario, where are found the world's largest nickel deposits, on to a tract southwest of Lake Temagami, where copper, gold, arsenic and bismuth are being mined, thence to Cobalt, west of Lake Temiskaming, where are located the richest silver mines yet extant. Again across Lake Temiskaming, on the Quebec side, and away to the north, have been discovered more silver deposits, rich gold-bearing quartz, copper, asbestos, graphite and many other minerals.

"Every day until the winter set in prospectors were thronging into the Government Mining Inspector's office, recording fresh finds of minerals ; and there can be little doubt but that this district will soon establish itself as the biggest and richest mining camp yet discovered. In strong contrast to the popular idea of a mining camp as a place where lawlessness and disorder reign almost unchecked, the new-comer to Cobalt cannot fail to be impressed by the quiet and orderly atmosphere which pervades the place. . . . As to the permanency of the camp, this is established beyond all doubt."

More recently—just, in fact, as this volume is going to press—Mr. Arthur G. Penman, a well-known Toronto business man, who is heavily interested in Cobalt as managing director of two of the largest mines there, arrived in London direct from Cobalt on a brief visit with a view to making efforts to interest English capital in Ontario's great silver camps. Mr. Penman, one of

whose first acts on his arrival was to call at *The Financier* office, said that when he left Cobalt at the end of May, there was still considerable snow on the ground, owing to the exceptionally long continuance of a very severe winter. The roads were in an almost impassable condition, preventing shipment from the mines to a great extent, except from those immediately adjoining the railroad. This condition had existed during the entire spring and, consequently, most of the mines had been putting up buildings and making preparations for working large crews of men during the summer months. They had also been installing machinery. Such ore as they had taken out was, in a great many cases, simply sacked up ready to ship. "As soon as the roads become good," said Mr. Penman, "an immense amount of rich silver ore will be shipped from the camp, for the mines are beginning to do mining now, and not the mere surface digging that many of them have been doing heretofore."

Mr. Penman firmly believes that before another six months are over, Cobalt will be able to boast of a number of mines whose shipments equal those of any silver mines in the world. He mentioned that just before he left the camp a report was received from the smelter saying that the last car-load of ore from the La Rose mine gave returns of 125,000 dollars. He pointed out, however, that if the mineral resources of Ontario are to be opened up properly, outside capital is essential. Canadians, he says, are very anxious that English capitalists should at least be willing to take the trouble to investigate the richest silver camp in the world, rather than allow, as I have already indicated, the Americans to grab all the good things first.

CONCLUSIONS :

That, with care, there are excellent opportunities for investment in the Cobalt Mines.

That Cobalt is justifying its promise.

That there is a tremendous rush of prospectors this summer.

That they are now pouring into Cobalt in order to be ready for an early start.

That the Buffalo Mine is one of the typically representative mines of the district.

That the most recent information from the Cobalt camp fully justifies the earlier anticipations and the optimistic feelings which have prevailed.

CHAPTER VII.

MORE ABOUT THE COBALT FIELD AND THE RICHES OF NORTHERN ONTARIO.

THE COBALT TOWNSITE.—THE CASEY COBALT COMPANY.—
RESULTS THAT INSPIRE CONFIDENCE.—RECENT DEVELOP-
MENTS IN NORTHERN ONTARIO.—DISCOVERIES FURTHER
AFIELD.—A MAGNIFICENT ASSET.

IN previous chapters I have chiefly dealt with the shipping mines in the district of Cobalt itself. These have included the famous Townsite, Nipissing, Buffalo and other mines of known richness. I was able to speak from personal investigation of the position and prospects of these companies. When I was in Northern Ontario I formed a very strong view that further exploration would prove that Cobalt itself was the centre of an enormous and highly-mineralised area. This view was founded on the apparent similarity of the geological conditions of the country through which I passed, on the confident opinion of a number of the most eminent mining engineers in the locality, and on authentic information of discoveries of exactly identical ore fifteen or twenty miles away from Cobalt itself. The rock formation of the developed Cobalt mines consists of conglomerates, breccias, slates and quartzites of varying character. Samples of ore from that formation are reported to have been obtained far outside of what is known as the Cobalt mineralised circle.

On all sides I heard of arrangements being made for the despatch of expeditions in the spring of this year. The objective of many of these expeditions was to be as far as 100 miles north of Cobalt. It is a matter of common knowledge that numbers of these parties have already started, and, personally, I shall be very much surprised if the results obtained do not justify my view that there is an enormous territory between the Great Lakes and Hudson's Bay rich, not only in silver, but in other valuable minerals, not even excepting gold.

Since my return I have naturally followed with very great interest the developments which have taken place not only in

Cobalt, but in the surrounding district. My correspondents have kept me informed of every new discovery, and I have, of course, been a close student of all the contributions on the geological formations of the country in Northern Ontario which have appeared in the American and Canadian scientific journals. The result of all this has tended to confirm my previous theories, and has given me confidence to unhesitatingly recommend English capitalists to seriously interest themselves in this wonderful district.

Here, however, let me add one note of warning—one that has already been sounded by many prominent public men. It is that the investing public should beware of the many "wild-cat" schemes that will probably be floated in this country. It would be a thousand pities if capital were checked by a repetition of what has occurred in previous mining booms. If, however, investors will confine their attention to propositions brought out under good auspices they will be assured of a fair run for their money.

Fortunately, the mining laws of Ontario offer some protection against unscrupulous promoters. In the words of Sir Wilfrid Laurier: "The Government of Ontario causes careful examinations by its own mining experts to be made, and until the official investigation is completed and the Government inspector is satisfied that the property in question possesses payable mineral in places no title is granted. The Ontario Government is the only one up till now that has exercised such discretion, one which, I should say, should prove of vast importance to intending investors."

It would be well, perhaps, if the Ontario Government would go a step further. It is well known that Lord Cromer was successful in discouraging to a great extent the reckless exploitation of the mines and agricultural lands of Egypt and the Soudan. If the Ontario Government could adopt a similar policy in regard to the exploitation of the mineral riches of Northern Ontario, not only would investors probably be saved from incurring heavy losses, but the credit of Canada as a field for legitimate mining investment would be greatly enhanced.

So far, the pioneer Cobalt proposition placed on the English market has more than justified itself. It is already a shipping mine, and the shares command a high premium. I refer, of course, to the Cobalt Townsite Mine. Prior to the flotation of this company a fair amount of development work had been done. The ore obtained for assay had yielded as much as 1,000 dollars to the ton. Early in the current year shipments from the mine commenced; up to April 6th these had amounted to 90,160 lbs. The smelters' return in one instance

certified 449 ounces of silver per ton of 2,000 lbs. and $3\frac{1}{2}$ per cent. cobalt. On April 12th a cablegram received by the company stated: "Have made a new discovery, Ruby Silver, 4 inches, parallel with vein 3, cross-cut to the north; 4,000 ounces of silver per ton of 2,000 lbs."

The house responsible for the flotation of the Casey Cobalt property is known to have secured very extensive interests in Northern Ontario. The property is about fifteen miles north of Cobalt. In this mining area the geological conditions, according to the views of various well-known mining engineers, are identical with those existing at Cobalt itself, the ores resembling those found in the Nipissing, La Rose, Townsite and McKinley-Darragh. The mine is locally known as the Bucknell mine, from the name of its discoverer, Mr. John Bucknell. The property consists of about 120 acres, in three lots, and is situated on a small mountain or hill.

A number of assays have been taken, the highest of which showed no less than 7,000 ounces of silver. So far, of course, the property has not been wholly prospected, but on only a small portion twelve veins of cobalt and silver have been found. These vary in width from a few inches to 6 feet. Assays have proved that nine of the veins are rich in silver values. Many of these veins have been traced for several hundred feet, and three shafts have been sunk.

It is reported that on vein 1, which has been traced for a distance of about 400 feet north-east and south-west, a shaft has been sunk to a depth of 50 feet. That vein carries cobalt, silver and nickel. About 35 feet down a drift was started to the south-west and run along the side of the vein, which is particularly rich in bismuth. There is a saying in Cobalt Camp that "bismuth always leads to silver." The adage was confirmed in this instance, for about 35 feet in from the shaft a new silver vein of proved value came in on the drift.

Shafts 1 and 2 are about 300 feet apart; shafts 1 and 3 are separated by 500 feet; shafts 2 and 3 by 700 feet. Shaft 2 is located on veins 2, 3, 4, and 5. Three of them run parallel; the fourth is at right angles, and the shaft is sunk at the junction. Between veins 2 and 3 is a dyke of gabbro formation. Veins 3 and 4 are similarly divided. The vein matter here consists of smaltite carrying the richest values in silver so far found on the property. Small spatters of silver are visible to the eye throughout the whole 7 feet of gabbro dyke. Shaft 3 was started on vein 10, which runs north and south. The vein has been traced 200 feet, and is a true fissure vein. At 35 feet it widens to 6 feet. An assay taken 10 feet down gave 1,810 ounces of silver. Another assay from the same vein showed 1,525 ounces of silver. A third

gave 2,009 ounces of silver and 15.4 per cent. cobalt. This vein, running in a southerly direction, cuts into vein 1 about 75 feet west from shaft 1, and at a little depth may prove to be the backbone of the property.

For the above results to have been obtained from practically only 2 per cent. of the company's property in so short a period of time gives good ground for the belief that before long the Casey will take its place amongst the leading shipping mines of the Cobalt district. I have dealt somewhat fully with the Casey Cobalt Company because it is an English undertaking, and because the results already obtained from this property go far to prove that the wonderful mineral riches of the district are not, as was at one time thought, confined to a small area some eight miles square.

Since my return to England there have, as I have indicated, been great developments and many fresh rich discoveries of importance in the Cobalt field. It will be remembered, for example, that at the end of March last a silver nugget weighing 276 lbs. was taken out of the Temiskamingue mine, and assayed 12,000 ounces to the ton, while another nugget found in the same vein, which only weighed 100 lbs., assayed as much as 22,000 ounces to the ton. Other important finds have since been made, all of which seem to justify the optimistic forecasts which have been made with regard to the Cobalt field as a whole, and such mines as the Nipissing, Buffalo and others in particular.

It has been cabled over, for example, that the demonstrated richness of the district has drawn capital from all quarters. There are, it is reported, over 350 companies interested in mining operations in the district, representing an aggregate capitalisation of some 250 million dollars, which is employed in either working or seeking for silver-bearing land in the field—although, personally, I repeat these figures with all reserve, as I have no means of checking their accuracy.

According to the Canadian newspapers received just as this volume is going to press, it seems that the total shipments from Cobalt, Camp for the present year, up to April 20th, have amounted to 6,279,939 lbs., or 3,139 tons, and for the week ending April 20th the shipments were 358,540 lbs., or 174 tons. The relative details are given as follows as regards the ore shipped in 1907:—

| | | | | | | Lbs. |
|------------|----|----|----|----|----|-----------|
| Nipissing | .. | .. | .. | .. | .. | 1,605,423 |
| O'Brien .. | .. | .. | .. | .. | .. | 1,471,877 |
| Trethewey | .. | .. | .. | .. | .. | 642,498 |
| Buffalo .. | .. | .. | .. | .. | .. | 640,000 |
| Coniagas | .. | .. | .. | .. | .. | 576,270 |
| La Rose.. | .. | .. | .. | .. | .. | 373,567 |

| | Lbs. |
|----------------------------|---------|
| Silver Queen | 220,577 |
| Kerr Lake (Jacobs) | 155,000 |
| Green-Meehan | 129,580 |
| Cobalt Central | 101,360 |
| Foster | 100,350 |
| University | 61,383 |
| McKinley | 60,000 |
| Townsite | 43,000 |
| Redrock | 40,000 |
| Colonial | 34,250 |
| Nova Scotia | 30,000 |
| Right-of-Way | 3,800 |

It may be added that the dividend-paying mines on the Cobalt field now include the following: Nipissing, Buffalo, Trethewey, Silver Queen, Foster, Kerr Lake, McKinley-Darragh, Right-of-Way, La Rose, O'Brien, Drummond and Coniagas. As, however, ten other mines are commencing to ship ores, the list of dividend-paying companies may be expected to be lengthened at an early date. It is further worthy of mention, as showing the great interest which the rich discoveries in the Cobalt Camp have aroused, that more than seventy-five members of the Canadian Mining Institute recently visited Cobalt and were greatly impressed. It seems that Professor Miller, the Government Geologist, expressed the opinion that: "There is one forty-acre lot in the Cobalt Camp above the hundred-foot level containing from ten to fifteen million dollars' worth of ore, and the camp is unequalled in North America in minerals and structure." Dr. Robert Bell, of the Canadian Geological Survey, and Professor Nichol, of the Canadian School of Mines, concur in the opinions which have been expressed as to the extent of the ore veins and the percentage of metal contained.

Probably it is tolerably safe to say that never in the history of the world's silver mining has ore been found in quantities yielding from 1,000 to 5,000 or 6,000 ounces of silver to the ton. In other silver-mining camps ore which gives 100 to 150 dollars to the ton is considered high grade. But at Cobalt thousands of tons of "seconds" are lying on the ore dumps, or are still *in situ* in the workings, which on assay would run fully 100 dollars to the ton. Even the second-grade ore at Cobalt has in some cases yielded from 200 to 300 dollars per ton. And it has to be borne in mind that, although silver is the backbone of the camp, quite a number of other valuable metals find places amongst its mineral resources. Amongst these, of course, cobalt and nickel stand high, but in addition there are bismuth, copper, antimony, lead and zinc, with traces also of gold and platinum. Indeed, with regard to the last-mentioned metal, one expert authority is credited with a statement that Cobalt ores carry platinum of great value, varying from 5 to 500 ounces to the ton.

No mining camp is wholly devoid of some drawback, and the drawback of the Cobalt Camp is its lack of smelters. Hitherto the Cobalt ores have been mostly shipped to New Jersey, in the United States, for treatment, a proceeding involving heavy freight charges, which low-grade ores cannot stand. No doubt this obstacle to rapid progress will sooner or later be overcome, and it is anticipated that Cobalt ores may in the near future be smelted by electricity, as experimental tests with that specific object in view are said to have proved it to be practicable.

Numerous fresh discoveries have been made further afield, and, briefly, these are as follow: Thirty miles south of Cobalt a vein has been located which gives ten dollars' worth of gold to the ton, in addition to other minerals. Silver-bearing galena has been found on the Cross Lake, which lies south-eastward of Lake Temagami. On an island in this lake are deposits of galena and copper pyrites in calcite. Thirty miles north of Cobalt ore containing a large percentage not only of cobalt, but also of gold, has been located at Ingram.

About seventy miles north-west of Cobalt native silver in large quantities has been discovered at Ellis Lake, in the Montreal River district, and already a town is springing up there. The Larder Lake district, which lies eastward, and some miles further north, is expected to become a considerable gold-producer. The discoveries there include native silver, bismuth, native gold, copper and galena, and, in addition, there is a black quartz which appears to be rich in gold. In the Lake Chibogomo district discoveries have been made not only of galena and asbestos, but of silver, copper, mica and iron. Fifty miles further north of Larder Lake, on Lake Abitibi, gold, silver and copper bearing ores have been found, and a camp is in course of formation.

Twenty-five miles west of Cobalt is Lady Evelyn Lake. Professor W.G. Miller, Provincial Geologist, reports that the geological conditions there are very similar to those at Cobalt. The deposits carry cobalt bloom, smaltite and native silver. The discoveries on examination were so valuable as to indicate a district of equal possibilities. Quartz veins, according to several authorities, have been found on both sides of the lake, whence they trend north to the Montreal River. East of Cobalt there have been discoveries and actual operations in the past.

I think I have written sufficient in this and preceding chapters to prove what wonderful possibilities Canada possesses in the mineral resources of this interesting region, fully justifying the especial prominence which I have given it in this volume. So far, owing to their enterprise and to their being practically on the spot, the Americans have secured control of many of the mines of proved value in Cobalt itself; but, now that the attention

of English capitalists has been directed to the great opportunities there are for profitable investment, it is reasonable to suppose they will do their part in the development of Canada's mineral resources. Of one thing I am certain, and that is that the Canadians in Cobalt prefer a thousandfold to deal with British representatives, provided that equal promptness is possible in the negotiation of deals.

On all sides, as I have explained elsewhere, the desire is expressed that the Americans should not be allowed to "scoop up all the good things." Personally, from the growing interest now being taken in this country in regard to Cobalt and its district, I am perfectly persuaded that they will not have to complain of this want of interest and sympathy very much longer. It is obvious to me that, unless ruined by recklessness on the part of those who desire to acquire properties, and by the machinations of unscrupulous company-mongers, or prejudiced by incompetent management or financial maladministration, the Cobalt Camp has a future in store for it which is probably unequalled by any other silver-mining field in the world.

CONCLUSIONS :

That Cobalt's formation runs north in unimpaired value.

That the Casey Cobalt Mine proves the continuance of the rich veins.

That it is a partially developed mine, and the veins revealed give high assays.

That the success of the Cobalt Townsite is an excellent augury for the closely related Casey Cobalt.

That there is ■■ enormous mineral area in Ontario.

That it stretches from the Lakes to possibly beyond Hudson's Bay.

That it is a magnificent asset of Canada.

That it is amazingly rich in places.

That to all appearances the future of the Cobalt mining field is assured.

CHAPTER VIII.

CEMENT-MAKING IN THE ROCKY MOUNTAINS.

A REMARKABLE METAMORPHOSIS : FROM A WILDERNESS TO A PREMIER CEMENT WORKS.—THE WESTERN CANADA CEMENT AND COAL COMPANY, LIMITED.—CEMENT MANUFACTURE IN EXCELSIS AT EXSHAW.—THE MODUS OPERANDI.—POWER, DRAINAGE, AND WATER SUPPLY.—THE CEMENT OUTLOOK IN CANADA.

IT was one of the drawbacks of such a journey as I was enabled to make through the Dominion of Canada that my resources in the matter of time and opportunity were necessarily restricted. There was only a certain amount of work that could be done and a limited number of places which could be visited within the given period of my stay on the other side, and of these conditions the best had to be made. One result of this was that I was, as a rule, only able to visit one representative undertaking connected with any particular industry. It was part of my plan of campaign to visit a typical example of a Canadian cement works, for the cement manufacturing industry of Canada is one of large dimensions and steadily increasing importance. It is an industrial interest of a kind which naturally expands in a measure corresponding with local demand, as well as that which comes from distant markets as the result of commercial cultivation, and, as the development of Canada is now proceeding with astonishing rapidity, the cement industry is afforded fitting opportunities for expansion.

For the reasons I have mentioned it was only possible for me to include a visit to one representative cement enterprise in my itinerary, and I do not regret having selected for this purpose the property of the Western Canada Cement and Coal Company, Limited. For one thing, the new works of this company, now in the course of completion at Exshaw, in the Rocky Mountain region of Alberta, may be fairly said to represent the very last

word in the manufacture of cement upon the most approved scientific basis. For another, the works, and the little but rapidly-growing community of which they are the *raison d'être*, are typical of the rapidity which characterises the opening up of new ground and new enterprises in the Canada of to-day. On the whole, I could not, probably, have selected an undertaking in the Canadian cement trade which was better worth examining for the purpose I had in view than that of the Western Canada Cement and Coal Company, Limited.

The financial and administrative headquarters of this company are in Ottawa, and the concern was formed in 1905. Its board of directors comprises Sir Sandford Fleming, K.C.M.G., of Ottawa, who is president; Mr. C. A. Irvin, also of Ottawa, who is provisional vice-president; Mr. C. C. Chipman, of the Hudson's Bay Company, Winnipeg; Mr. F. B. Dunsford, of Devonshire, England; Captain J. S. Cape, of Winnipeg; Mr. J. S. Irvin, of Ottawa, the manager; and Mr. Hugh Fleming, secretary and treasurer. The capital of the company is represented by a bond issue of £225,000 and common stock to the value of 1,250,000 dollars. The company's property in Alberta comprises an area of 1,200 acres, of which about 600 acres consist of limestone rock at Exshaw, where also the mill is situated, while there are about 160 acres of shale at Kananaskis, Radnor and Laggan—the nearest of which is about four miles distant from the mill just mentioned, and which is situated directly on the railway track—and 355 acres of coal-bearing land at Anthracite. So that it will be seen that the property is mineralogically a valuable one on the face of it.

Exshaw enjoys the advantage of being situated on the main line of the Canadian Pacific Railway as it traverses the vast area of Alberta. Until the Western Canada Cement and Coal Company literally pitched their tents on the spot the neighbourhood was a veritable lone land, far indeed from the "madding crowd." The district is a typically Rocky Mountain one—or perhaps I should rather say was, for the introduction of modern manufacturing enterprise on a large scale contributes a novel and unaccustomed element, which is in strange contrast to the picturesque grandeur of a district where untutored Nature is still supreme. On every side towering mountains justify the name of the rugged range of which they are components, and close by a placid lake, beautifully set, like a jewel in a casket, adds another element of charm to a strikingly varied scene. Hitherto civilisation seemed only to accord it the briefest visitations, as when the trains of the Canadian Pacific Railway rushed rapidly through it and onwards on their rock-bound track, and what is now Exshaw was formerly but an occasional camping spot for nomadic tribes of Redskins.

To-day, however, the scene is changed indeed, and Exshaw is becoming quite a busy little industrial centre, though, as towns grow up in Western Canada, it is safe to assume that its smallness will be a short-lived condition. Already neat little houses—bungalow-like structures, which would do credit to the Thames at Henley—are peeping out in all directions on mountain-side and in valley; a substantial hotel, erected on the lines of a Swiss *chalet*, has been built; roads are being rapidly constructed; an excellent system of drainage is already installed; and, New World-like, it will no doubt have a newspaper of its very own before many months are past. But the enterprising settlers do not wait to build their homes before they commence pioneering



THE HOTEL AT EXSHAW, IN THE ROCKY MOUNTAINS.

operations. They will tell you they grow up best together. And so, at the time of my visit last year, on September 23rd, a number of the settlers were still living under canvas.

Of this the enterprise of the Western Canada Cement and Coal Company, Limited, furnishes a striking example. As I have already stated, the company was only incorporated in 1905. At that time the site of the existing mill was the merest wilderness, enclosed on every side by formidable mountains, and with the Bow River running parallel with the Canadian Pacific Railway track. In October, 1905, a survey party arrived on the spot to select a suitable location for the mill and to clear and level a site for the construction of the works. These operations occupied the activities of the party until March of last year.

This survey party prepared plans and laid down water mains some 4,000 feet in extent, and during the same time underground operations were commenced. Since then work has proceeded with that rapidity which is characteristic of Western Canada, and can only be equalled occasionally in the United States ; and all this, too, notwithstanding the occurrence of the almost inevitable labour difficulties, which are sometimes sufficiently pronounced in the West to paralyse pioneering and development work altogether.

By the time I arrived on the scene the construction of the various buildings had been completed, with the exception of the steel work. A perfect labyrinth of tunnels had been constructed of solid cement. Two of these tunnels were 260 feet long. When part of the machinery was found, owing to its great size, to present difficulties in respect to handling and transport if the buildings to house it were first erected, the expedient was promptly employed of installing the plant in position, and practically constructing the building round about it. The mill being, as I mentioned, immediately abutting upon the railway, a number of sidings—aggregating in all about 3,000 feet—have been laid down ; rough roads have been made in every convenient direction ; and an immense deal of other indispensable work—literally spade work in the most significant meaning of the expression—accomplished, and all of it with a degree of solidarity which is calculated, one is almost tempted to think, to last as long as the encircling mountains themselves.

Cement, as it is known in the industrial arts, is a composite substance of both natural and artificial production. It has been variously described, but as good a definition of it as any I ever came across was one which had it that it was “A substance which, applied in a moist state, makes the surfaces of solid bodies adhere to one another.” *Per contra*, of course, every substance which is capable of fulfilling this function is not necessarily a cement. But, anyhow, cement as we know it to-day is essentially a manufactured material, and, most matter of fact substance of all others, surely, as it is, it is still not without its element of romance.

It was Smeaton who, when building the Eddystone Lighthouse, discovered that by adding clay to chalk or lime, and calcining and pulverising the mixture, a mortar was obtained which hardened quickly and was unaffected by water. From this discovery sprang the Roman cement industry, which attained important dimensions during the first quarter of last century on the banks of the Thames. But it was left for a Yorkshire bricklayer named Aspdin to discover that the clinker formed in the course of manufacture was the real cement, and for his

method of obtaining and manipulating it he obtained a patent in 1824, and thus founded the Portland cement industry, of which England has been the cradle.

But it has been the cradle only, for cement manufacture remains no longer a speciality of any one country. It is produced in vast quantities on both sides of the Atlantic, Great Britain, Germany and Belgium leading on this side. In Canada the industry is one of considerable extent, and it has had its financial and industrial vicissitudes, just as ours has at home. But conditions in the country are now more favourable to the profitable prosecution of the trade than they were, and there is consequently nothing heroic in the Western Canada Cement and Coal Company laying down a huge plant in the remote West. The enterprise has been based on clearly-seen prospects and favourable opportunities, of all of which the company mean to make the most by placing themselves in a position to compete under the most promising conditions.

The disposition of the component parts of their property and the methods they propose to adopt in the manufacture of the cement are important elements in the means which will be adopted towards this end. And this brings me to deal briefly with the *modus operandi* at Exshaw. The first essential, of course, in the production of cement is a plentiful supply of limestone, and of this, as I have indicated, there is an abundance close to the mill. Right on the property the company possess a veritable mountain of limestone, containing 90 per cent of lime. This mountain has been "proved" in every direction, and it has been declared that, in the opinion of competent authorities, there is limestone enough to last over a consumption of from 200 to 250 years, so that there need be no immediate anxiety on the score of early exhaustion. The mill is conveniently fixed at the base of this mountain, so that the stone, when it is collected, can be easily conveyed thereto by gravitation.

Next after limestone, the most important essential for the manufacture of cement is a clay, or shale, containing alumina and silica in suitable proportions. The company, fortunate in most particulars, have not a deposit of this material right on their main property—it would have been a unique combination if there had been—but they have acquired a valuable area of shale-bearing property, as previously mentioned, well within what may be accurately described as an economical distance, on the line of the Canadian Pacific Railway. In cement-making practice only about 25 per cent. of such shale is used to 75 per cent. of limestone, and the company obviously did the common-sense thing when they built the mill close to the limestone rather than to the shale.

Then, of course, a ready source of coal supply is of the greatest economical consideration in connection with such an industry as cement-making, and this the company have practically at their own door, so to speak. In the neighbouring location of Anthracite they possess, as I also previously indicated, a mine yielding the very best quality of anthracite coal. In this mine a shaft has been sunk about 150 feet, and, besides, seams of coal have outcropped on the surface in widths varying from 3 feet 7 inches to 9 feet 6 inches, these seams having a sandstone roof and a sandstone floor.' The coal raised from this mine is used both for burning the limestone and producing motive power. The requirements of the works in the latter respect will involve a consumption of 28,000 tons per annum, while the sum total of coal required by the industry will run into something like 60,000 tons per annum.

The arrangements for handling the various materials have been made on so complete a plan that from the time the limestone, shale and coal arrive at the works they are not once touched by hand, until, indeed, the string is tied round the mouths of the bags of finished cement at the depot prior to despatch by rail. At the same time the materials are by no means allowed to pass along in a happy-go-lucky fashion. On the contrary, as the various processes occur they are examined by a competent chemist. Anything more surprising to the mind which is not that of an expert in cement manufacture it would be difficult to suggest than the mechanical arrangements which effect the conveyance of the materials through the tunnels, and the supplementary system of labour-saving mechanisms employed. I had expected to see ranges of unsightly kilns, similar to those one sees by the banks of the Medway and in other cement-producing centres in this country, but I was agreeably disappointed to find the *modus operandi* out in the remote and still wild West so different to, and so much in advance of, what appear to be the accepted methods at home, except in the case of one or two leading English firms, such, for instance, as Messrs. Martin, Earle and Co., Limited.

In practice the raw materials are, primarily, proportioned according to the character of their analysis, the rock as it comes from the neighbouring quarry being broken into small pieces by a crusher. This partially pulverised rock is then automatically conveyed to huge revolving cylindrical driers, after which it is passed on to a battery of Krupp's grinders, which have a capacity of over 2,000 barrels a day. From these Krupp mills the material goes to a battery of tube mills, where it is further ground and mixed with the shale or clay, which has been previously dried, ground and conveyed to this point, in much the same

manner as the rock. Thence it is carried automatically to the large storage bins in the rotary or kiln building, from which it passes by gravity into the rotaries, in which the calcining process takes place. It is then dropped into fire-proof pits in an incandescent form, technically called "cement clinkers." These clinkers are next conveyed to a storage building, passing on their way through cold water, and are then put through a battery of Krupp grinders, in which the clinkers are partially ground. Finally the material passes through a battery of tube mills, where it is reduced to an impalpable powder, and the process is complete, the whole process from start to finish being automatic. The manufactured cement then continues its journey to the store-house, where it is forthwith bagged by mechanical means.

The power-house at the Exshaw works is an important factor in the general working efficiency of the undertaking. It accommodates three turbine generators of 1,000 kilowatts each, and the power is derived from a range of seven Babcock and Wilcox water-tube boilers. A couple of powerful pumps are also provided with a view to coping with fire in the case of an outbreak. In such an event an effective water supply is available. The water is stored in a reservoir constructed by means of a large dam situated 200 feet above the mill, and having a capacity of 7,000,000 gallons—a provision which gives a pressure of 95 lbs. to the square inch at the mill. There are in the neighbourhood of the mill thirteen hydrants, while four more are placed in the vicinity of the hotel and at other important points in the village.

Then as to drainage : this has been very carefully arranged, and is in keeping with the best modern sanitary practice. From the first especial care has been taken to avoid the possibility of the water supply being contaminated, and, as a further precaution, a large reservoir is in course of construction. One important result of the admirable forethought which has been given to this subject is the entire absence of sickness since the camp, or village, was first established. Considering that the foundation of the new industry and community has brought together in this remote quarter not less than 500 people, hastily collected from many different parts of the world, and representing numerous races, and that these have passed through the hot season of the year without any outbreak of sickness, the result is one which reflects infinite credit upon those responsible for the laying out and administration of the works and the exercise of authority on the spot.

Not long ago there was a formal inspection of the works at Exshaw by Sir Sandford Fleming, the president, and his co-directors. Two days after their arrival they were joined by

Mr. R. R. Jamieson, general superintendent of the Western Division of the Canadian Pacific Railway, and his guests. The various departments where the processes of the industry will be carried on till the product is warehoused were inspected, and perfect satisfaction was expressed with the progress which was being made. The railway authorities were of opinion that the industry will meet a widely-felt want.

Most of the machinery and plant is already installed, and the structural steel is now being erected over the fifteen large buildings, which cover an area of about 135,000 square feet. The powerhouse will be one of the best-equipped in Canada. The boiler-room is to contain seven 400 horse-power water-tube boilers, with superheaters. The main power equipment will consist of three 1,000 k.-w. alternating generators, directly connected with three steam turbines and two 125 k.-w. exciters, which will furnish excitation for the big machines and electric light for the entire plant and town. A perfect gravity system of waterworks gives the town and plant a one-hundred-pound fire pressure from each of the many hydrants on the premises.

And now crops up the inevitable question, which is the bed-rock of all commercial enterprise, and which may be aptly summed up in the laconic query: Will it pay? What are its chances, its prospects, in competition? What advantage will the Western Canada Cement and Coal Company, Limited, obtain from having installed at Exshaw one of the finest cement-making plants in existence, with a system of tunnels as elaborate as it is unique, and, generally, by incurring a huge outlay of capital so far to the West as the Rockies of Alberta? I found there was no question as to the commercial possibilities of the property and its industry, but the little reticence displayed I attributed to a desire to withhold information of an important nature from the trade.

I found, however, that the company's calculations are based on an estimate that at all seasons of the year there will be an average daily output of 1,800 barrels of cement. The actual labour required for this large output is estimated not to exceed 225 hands. Taking all things into consideration, I find that the confident view of the officials is that the cost of manufacture will not exceed 1 dollar a barrel. If we take the average selling price of cement at 4 dollars a barrel, it will be seen that the margin left is a very liberal one. Nevertheless, I feel bound to say that, personally, I believe the cost of production will be very much less than a dollar a barrel. I should not be at all surprised if the actual result pans out at from 50c. to 75c. per barrel. If my calculations are anything near the mark, the responsible officials of the company are well within the mark with theirs, and if that be so we have in this Exshaw enterprise an undertaking in the

making of the most significant promise, and one whose operations are likely to have a revolutionary effect upon the cement industry of Canada.

Regarding this industry, I may just add that in 1906 there were fifteen companies in operation in Ontario, Quebec, British Columbia and Nova Scotia. Here are the figures as to stocks and production for 1905 and 1906, the latest official figures available at the time of writing :—

| | 1905. | | 1906. |
|-----------------------------|-----------|------|-----------|
| | Barrels. | | Barrels. |
| Portland cement sold | 1,346,548 | .... | 2,119,764 |
| „ „ manufactured | 1,541,568 | .... | 2,152,562 |
| Stock on hand, Jan. 1 | 111,446 | .... | 269,558 |
| „ „ Dec. 31 | 306,466 | .... | 302,356 |
| | | | |
| | Dols. | | Dols. |
| Value of cement sold | 1,913,740 | .... | 3,164,807 |

The imports of Portland cement into Canada in 1906 were :—

| | Quantity. | | Value. |
|------------------------------|-----------|------|---------|
| | Cwts. | | Dols. |
| Six months ending June | 945,187 | .... | 319,021 |
| „ „ „ December | 1,485,473 | .... | 459,685 |
| | | | |
| Total | 2,430,660 | .... | 778,706 |

The amount of manufactured cement—that is, Portland cement—exported from Canada is very small, the consumption being practically represented by the Canadian sales and the quantity imported. In 1901 the consumption in Canada was 872,966 barrels. By 1905 this total had increased to 2,264,106 barrels, while last year the consumption amounted to 2,814,267 barrels, far and away the highest on record. As a matter of fact, Canada has not been able latterly to produce enough cement to adequately meet her own internal consumption, and the facts that cement is now being used to a greatly increased extent in building operations, road-making and for other constructional purposes, and that work of such sorts is in exceptionally active progress at the present time all over the Dominion, have combined to contribute a great impetus to the Canadian cement industry, and to cause a correspondingly increased output. Under these circumstances it is not too much to predict for the Western Canada Cement and Coal Company, Limited, if its affairs continue to be conducted, as doubtless will be the case, with the same energy and ability which have characterised their inception and

development up till now, a large measure of industrial and pecuniary success.

CONCLUSIONS :

That the Western Canada Cement and Coal Company, Limited, owns a remarkable property of great possibilities.

That satisfactory progress is revealed by inspection.

That the machinery, plant and system of manufacture adopted mark immense advances on most of the current practice in cement manufacture.

That the industry will meet a widely-felt want.

That the results of the company's operations promise to be revolutionary in their effect upon the Canadian cement industry.

SECTION V.

**THE FOREST RESOURCES OF
CANADA.**

CHAPTER I.

THE FOREST WEALTH OF THE DOMINION: A GENERAL SURVEY.

THE FOREST RESOURCES OF CANADA AN IMPERIAL HERITAGE.—
AN ATTEMPT AT A COMPUTATION.—THE FORESTS OF QUEBEC
AND ONTARIO.—THE FORESTATION OF BRITISH COLUMBIA
AND THE NORTH-WEST.—THE TIMBER RESOURCES OF NOVA
SCOTIA AND NEW BRUNSWICK.

WHEN I come to look back upon the rapid survey of Canada's industrial resources—awaiting, as they do, only the engaging stimulus of the magic wand, which is handled by capital and enterprise, to advance their development—which formed the *raison d'être* of my visit to the Dominion, it becomes more and more difficult to say what impressed me most. I was, as I have stated in a previous chapter, profoundly interested in the extraordinary agricultural wealth of the Colony: my journey through the great Wheat Belt and the North-West was, indeed, a liberal education in its own domain. But then, again, so were my visits to a selected few of the typical centres of activity in Canadian mining, railway and manufacturing enterprise. And so, too, with the forest resources of Canada—amongst the greatest and most prolific in the world as they are. The fringe of them was all that time and opportunity permitted me to see, but even such a sampling was a convincing experience.

The forest wealth of Canada in economic timber is probably the greatest in the world. So far as it concerns timber accessible for, and amenable to, present-time industrial purposes, there is no question that the resources of Canada in economic timber come first in cosmopolitan significance. The strenuous and optimistic Canadian of to-day is not blind to the sterling advantage of this magnificent endowment, and, considering the disadvantages under which he laboured for many years in turning this latent forest wealth to practical account, he has made splendid headway against difficulties which might well have cowed the stoutest heart. But the true Canadian is a real chip of the old block, especially where lumber and timber working are concerned,

and he has conquered the fastnesses of the virgin forest just as he means to overcome every other difficulty which impedes his progress in working out his destiny as a scion of British racehood.

A full appreciation of the possibilities of Canada in the matter of the lumber and wood-working industries without some general knowledge, however cursory and fragmentary, of her forest resources as they are—in *situ*, and for the most part as yet in a virginal state—would be impossible. It has been officially computed that from 38 to 40 per cent. of the whole area of the Dominion consists of woodland and forests. This is equivalent to about 1,400,000 square miles, or over 800,000,000 acres. In this connection I find that a leading Transatlantic authority on the lumber, industry—the *American Lumberman*—in reviewing the forest resources of Canada a few months ago, computed the total acreage covered at 865,000,000 acres, which is practically synonymous with the calculations I have already given “Admitting,” says the *American Lumberman*, “that the entire area will average but 1,000 ft. of sawn timber an acre [a modest estimate, I understand], the total quantity would be 865,000,000,000 ft. If the long period of 100 years were allowed for the cutting of this quantity, we should have an annual production of 8,650,000,000 ft.; . . . but if the period of cutting should be limited to fifty years, as under intelligent forestry management it would be, the annual production would be increased to 17,300,000,000 ft., without deterioration or diminution of the stand. If the estimate should be 2,000 ft. to the acre of standing timber, the maximum product, on the basis of fifty years’ cutting, would be nearly 35,000,000,000 ft. annually—more than now produced in the United States.”

What all this means in productive capacity, when converted into logs, let alone deals, battens, shingles, sleepers and the like, not to speak of household furniture, structural and manufactured timber, wood-pulp, the wooden portions of agricultural implements, and mechanical appliances made wholly or almost entirely of wood, and very much more in the range of industrial production besides, it is difficult for one readily to grasp. Nevertheless such is the stock-in-trade in growing timber—practically all of it—which Canada can boast to-day. And, with such an immense territory to consider, it is obviously impossible to do more than glance briefly at the extent and distribution of the forest resources of the Dominion; and for convenience I think I may preferably deal with the points involved province by province, as this method will better accord with what I shall have to say when I come to concern myself with some of the leading individual interests which are embraced within the general scope of my subject as a whole.

Although the most populous of the Canadian provinces, and those most largely exploited for industrial purposes, Quebec and Ontario have areas of woodland and forest of which the reader at home here has little conception. If one takes, for example, a single district in the province of Quebec—Lake St. John—it is found to contain an area of 30,000 square miles, or 19,200,000 acres, of which only about 500,000 acres have been cleared. The remainder is covered with forest land, of which about 75 per cent. consists of spruce, presenting a splendid reservation for the wood-pulp manufacturer. Even if one takes the extremely low estimate of five cords of pulp-wood per acre, there are at present in this area as many as one hundred million cords of uncut pulp-wood available !

The territory acquired by Quebec on its northern, north-western and north-eastern boundaries a few years ago has greatly increased its forest area, so that of the 844,450 square miles comprised within its boundaries, much of the forest-land is yet unsurveyed, and even unexplored. These districts lie chiefly to the north of the St. Lawrence and Ottawa Rivers, and are covered with trees which are characteristic of sub-Arctic forests—namely, spruce, fir, poplar and birch. Of a similar character are the great forests of Anticosti—which island alone is computed to possess about 1,800,000 acres of forest-land—and the Gaspé Peninsula, while on the other side of the St. Lawrence, westward of the Saguenay River, and up the Ottawa, large quantities of hardwoods are found, as also maple, birch, and beech. None of those woods, however, are so largely cut for manufacturing purposes as is the case in Ontario.

In Quebec the timber-lands are worked under licences from the Crown at a yearly rental of, I believe, 3 dollars per square mile, in addition to which stumpage dues are charged. The chief of these are for squared timber, 2 cents per cubic foot, and for logs and dimensioned timber, with the exception of spruce and certain other woods, 1.30 dollars per 1,000 ft. board measure.

Ontario is richer in the varieties of its trees than the sister province, and, as a natural consequence, the wood-working industries are of greater importance than is the case in Quebec, or, indeed, in any other part of the Dominion. The forests of northern and north-western Ontario closely resemble those of Quebec, spruce pine, poplar and birch being the economic timbers of greatest importance. Pine has for a long period been the chief wood exported from Ontario, and vast quantities still remain uncut, although the timber exists in nothing like its former abundance. Nearly all the lands upon which it grows have already been sold or licensed by the Crown ; and the increase which has latterly taken place in the exports of articles manufactured from wood in a great measure

results from the new industries which have been established in Ontario. And in Ontario, as in Quebec, one of its largest forest assets consists of the large areas of uncut spruce, suitable for the manufacture of wood-pulp, which remain available.

The regulations which control the exploitation of the Crown timber lands in Ontario are briefly these: That when limits or berths are explored and surveyed, they are offered for sale by public auction and sold to the highest bidder for cash. All such berths and limits are subject to an annual ground rent of three dollars per square mile, in addition to which there are Crown dues varying from one cent to three cents per cubic foot, or 10 cents to 25 cents per standard of 200 feet board measure, according to the class of wood. The latest figures relating to the production of lumber and the output of timber products for Quebec and Ontario are not, at the moment, in my hands, but those I have before me show an output from the Ontario Crown lands of 544,457,139 feet board measure of pine saw logs, 8,224,442 ft. of other logs, 26,977,461 ft. of boom and dimensioned timber, and 1,478,387 cubic ft. of squared timber, which figures have to be supplemented by those referring to pulp-wood, cord-wood, railway ties, etc., and the figures which apply to the private lands.

If one desires to see forest grandeur in its most impressive form one must, I heard (and was, indeed, myself aware), cross the Rockies and get into British Columbia. There Nature has matured her plans on a colossal scale. It would seem almost as if she had run amuck in her desire to delineate the picturesque on the most gigantic lines. The trees are taller, larger and more striking in their gnarled ruggedness than probably anywhere else in the Dominion, in correspondence with the uncanny magnificence of her wonderful equipment in mountain, rock-cliff, canon and rushing waters. The giant arbor-vitæ reaches the climax of its growth; the Douglas fir, the Sitka spruce, the Western hemlock and the yellow cypress attain enormous dimensions, especially near the Pacific Coast and in Vancouver Island. The very abundance of timber wealth near the Pacific led to reckless methods of lumber production in the past, and even now there is room for improvement in this particular, especially as compared with the more prudent methods adopted, and to some extent made compulsory, I believe, in Quebec and Ontario.

But still the forest wealth of British Columbia is enormous. I found it impossible to ascertain the number of acres at present under lease, but a year or two back it was 491,649, with a further 43,500 under special licence. This would leave something like a million acres of timber-lands still unlicensed, and it has been estimated that as much as 75,000 ft. of timber can be cut per acre. The latest figures I have at the moment show a yearly export of

lumber and wood products from the province to the value of 766,202 dollars, on which I should be surprised if the latest returns do not show a considerable increase, for British Columbia does a large lumber trade with Australia, South America and the Far East. Moreover, the resources of the province in wood-pulp form an increasingly valuable asset.

The latest figures which are at my disposal indicate a total of timber sawn during a year of 219,027,971 ft., of which some 16,000,000 were exported. The regulations governing the exploitation of timber-lands in British Columbia seem to me to be easy and reasonable, but more complicated than those of the other provinces, so that considerations of space prevent me enlarging upon them here.

As can be readily understood, the forest resources of the North-West Territories are prodigious. To speak broadly, it might almost be said of the unsettled portions of Northern Manitoba, Alberta and Saskatchewan that what is not prairie land is forest, and practically the whole of the vast Keewatin, Athabasca and Mackenzie territories are covered by sub-Arctic forest lands, which present untold timber resources for the near and distant future. In these territories spruce, poplar and other pulp-woods are standing in enormous quantities, and no doubt in the future they will become the chief sources of supply for the raw material consumed by the paper mills of the United States.

The maritime provinces of Canada carry on lumber and timber working operations on a large scale, and have still large resources of forest wealth upon which to draw in future. Within their boundaries, too, are important reserves, for, as to Nova Scotia in particular, I ascertained that perhaps the larger proportion of the timber lands still held by the Crown has not yet reached the lumber-producing stage of growth. These ungranted areas cover something like 750,000 acres, and consist largely of spruce and kindred woods. Nova Scotia has been almost denuded of pine, but reforestation will do much in time to remedy this deficiency. As a matter of fact, there is now no virgin forest available in the province. The Crown lands are nearly exhausted, so far as the timber provided has reached the lumber stage, and the future must look largely to reforestation for its supplies.

Meanwhile, most of the lumber produced emanates from the lands and mills acquired by corporations and individuals and the amount exported a year or two back totalled up to 3,000,000 dollars in value. From information I have been able to cull from the Halifax daily *Morning Chronicle* (whose New Year's Day issue was a production which reflects the most abundant credit upon the enterprise of its conductors), it appears that the entire forest production of Nova Scotia for 1906 amounted in value to 4,750,000

dollars. The annual export of from 200 to 225 million ft. of timber creates an outlay for labour of over 2,000,000 dollars yearly. Small wonder then that the timber output of the province has been compared to the grain harvest of the great wheat belts of the West. One of the features of the timber trade last year was the unprecedented demand from the United States. Prices, too, have reached a high level, at which it seems they are likely to be maintained.

Last year there were shipped from the port of Parrsboro alone 42,500,000 superficial feet of deal ends and scantlings to the United Kingdom—a record shipment. Nevertheless, the enterprise of the strenuous Colonists is not satisfied. They are calling out for a revival of shipbuilding in the province, and for the building of lumber-carriers for the coastwise and foreign trade, which is at present largely carried on by Italian and Norwegian vessels, the fleet of Nova Scotia having almost disappeared. Improved harbour and loading facilities are also urgently wanted in order to maintain the timber trade of the province abreast of existing requirements.

New Brunswick seems, so far as I could learn, to possess a greater variety of indigenous trees than Nova Scotia, those of the coniferous family being near the coast, while in the inlands and uplands maple, beech, ash, birch and elm predominate. Vast areas are now in the hands of corporations and individuals, or under licence, but considerably over 2,000 square miles are still, I believe, vacant. As in the case of Nova Scotia, New Brunswick has little pine remaining—that is, of commercial size—but there are vast resources in other woods, and especially pulp-wood. The figures before me, which are not to be assumed to be up-to-date, show a production from Crown lands only—and the timber cut on private lands probably totals up to nearly as much—of 80,856,347 square feet of pine and spruce logs alone, while the exports of lumber and timber products are aggregated at 6,599,697 dollars, a total which, I have little doubt, has by this time considerably advanced. I should add that the rights to cut timber are acquired in New Brunswick by public auction, subject to restrictive and stumpage regulations, which while, I think, perfectly equitable, fully safeguard the interests of the Crown, and ensure the employment of prudent and non-wasteful methods in dealing with a prolific resource.

The figures at my disposal at the moment place the total produce of the Canadian forests exported in the course of a year as being of the value of 33,368,781 dollars, of which the United Kingdom absorbed 15,215,151 dollars, and the United States 15,018,815 dollars, the balance being made up by other Colonial and foreign markets, to which the Dominion shipped the products

of its forest wealth. I would, therefore, add my endorsement to a claim, officially made on behalf of the forest resources of Canada that, "No other country affords so good a future for the profitable investment of capital in the manufacture of wood products. Abundant raw material, cheap power and an unfailing market ensure success."

CONCLUSIONS :

That the Forest Resources of Canada are practically inexhaustible.

That in the possession of Economic Timber in immense and accessible quantities Canada is unsurpassed by any country in the world.

That the Canadians are developing their Forest Resources with wonderful pluck, enterprise and success, and they are taking a leading place amongst the dominant industrial assets of the Dominion.

CHAPTER II.

THE DISTRIBUTION OF COMMERCIAL TIMBER THROUGHOUT CANADA.

THE CANADIAN FORESTS PHENOMENALLY RICH IN ECONOMIC TIMBERS.—THE DISTRIBUTION OF THE PINES AND POPLARS.—THE WEALTH OF THE CANADIAN FORESTS IN SPRUCES.—THE DOUGLAS FIR OF BRITISH COLUMBIA.—THE HEMLOCK, ASH, CEDAR, ELM, BIRCH, OAK, AND WALNUT OF THE CANADIAN FORESTS.—THE “LAND OF THE MAPLE.”

HAVING in the preceding chapter referred to the general forest resources of the Dominion province by province, it may be well that I should now deal in brief detail with the distribution throughout the Dominion of the principal economic timbers, for it is upon the variety and commercial value of these products of the Canadian forests that the future of the lumber and timber working industries mainly depends. In doing so, however, I do not pretend to follow any scientific classification, but prefer to look upon the economic woods of Canada from the cold, but perhaps not entirely unsympathetic, standpoint of the business man.

By far the most important and commercially valuable of the forest trees of Canada is the white pine—the *Pinus strobus* of the arboriculturist—and its distribution ranges from the Maritime provinces on the Atlantic seaboard right away through the Eastern provinces to the fringe of Manitoba, extending northwards also to the rising lands which separate the watersheds of the Hudson Bay and St. Lawrence. As is well known, lumbering operations in the past, and in fact until a quite recent period, were conducted on a most recklessly wanton principle, or rather entire want of principle, so that the waste of valuable white pine in the Canadian forests has been incalculable. Nevertheless, although in the Maritime provinces the white and other pines are becoming scarce, there is still an immense quantity of growing white pine which will in time supply armies of lumbermen with material for their energies and the sawmills with remunerative work for years to come.

Sometimes the white pines of Eastern Canada, especially in the valley of the Ottawa, attain huge dimensions. Trees three and

four feet in diameter are quite common, and others of greater girth are by no means rare, but in the districts further east, and more particularly in the Maritime provinces, large trees are more common, and diameters of two and two and a-half feet are fair averages of what are regarded as trees of good commercial size. The wood of the Canadian white pine is soft and easily worked, and these conditions, coupled with its freedom from resin, enable it to be adapted for numerous constructive and other purposes. Shingles, laths, squared timber, panels and interior finishings are manufactured from the white pine in large quantities. There are also several Western white pines whose wood is similarly used to that of their more easterly congener. The best of these is found in Vancouver Island, and they occur also and attain considerable size in the mountain slopes of the Selkirks, but are not found in commercial quantities coastwards.

A harder and more resinous tree of the same family is the red pine, but it does not attain the dimensions of its white relative, nor is it so widely distributed. It is used for the same purposes, but, being stronger, is found valuable for heavy constructional work. Then there is the Jack pine, which ranges from the Foot Hills of the Rocky Mountains to the Maritime Provinces of the East, decreasing in height and girth as one moves eastward. It is well adapted for the production of mining and constructional timber, and I am told that it is also capable of producing good pulp for paper-making purposes. In the Rockies, where the Jack pine leaves off, the black pine commences, and it also covers large areas in the interior of British Columbia. Its industrial uses, however, are few, and mainly confined to the manufacture of railway ties and mine props, and the production of fuel-wood.

Of all Canadian trees the aspen poplar has perhaps the widest range of distribution, covering wide areas of forest land right away from the Atlantic seaboard to the Pacific coast, and northwards to the barren territories. Originally it was chiefly used as the material from which the early settlers built their log houses, and used for fence rails and firewood purposes, but in later years it has been found to produce an excellent pulp, and, in fact, rather anticipated the spruce as first favourite as a basis for wood pulp production. It is also largely used now in the miscellaneous wood-working industries of Canada. Manufacturers of barrels utilised in the flour and sugar industries, crates and boxes, furniture and miscellaneous wooden ware find it a conveniently light wood, which readily lends itself to manipulation by hand and machine.

As mentioned in previous chapters, the Canadian spruces are of great commercial importance to-day. Not only are they *par excellence* the woods from which the best pulps are manufactured for paper-making—and as such the spruce family now possesses

great economic value—but they are adapted in all their varieties to a wide range of timber-working purposes, from telegraph poles to polished panels, box shooks to fence posts, and ship and boat-building timber to flooring boards and wooden ware. The principal varieties found in the Canadian forests are the black spruce, the white spruce, the Sitca or Menzies spruce, and the Engelmann spruce. The first two varieties are found from Nova Scotia northwards almost to the Arctic Ocean. Quebec and Ontario have vast areas covered with spruce, and it may be said to be a leading constituent of the sub-Arctic forests, which stretch from the bleak coast of Labrador westward across the continent.

The Sitca spruce, which has a great future for pulp-making, has the valuable property of resisting insect attacks, and, favouring a coastward aspect, ranges from the southern extremity of British Columbia right away north to Alaska, and sometimes the trees reach a great size, although those cut for lumber are usually about five or six feet in diameter. The Engelmann spruce finds its principal home in the forest-bound slopes of the Selkirk and Rocky Mountains, where trees are frequently found more than 150 feet in height, with a diameter of about four feet. It is interesting to note that this spruce was the chief timber used in the construction of the Canadian Pacific Railway from the Rocky Mountains to its western terminus, and it did splendid service in the erection of the trestle and bridge work which was a feature of the engineering characteristic of the building of that great line.

The most valuable, and perhaps the most prolific, of the various trees of British Columbia is the Douglas fir, also known across the International Boundary and elsewhere as the Oregon pine, and sometimes variously as the yellow fir and red pine, while the arboriculturists distinguish it by the name of *Pseudotsuga Douglasii*. Perhaps this splendid tree attains its greatest altitude in Vancouver Island and in the coastward valleys of the mainland, where many trees are to be met with 300 feet in height. Those felled for lumber purposes are seldom more than seven feet in diameter, but it is nothing unusual to find the fir attain as many as ten or eleven feet in diameter, the ultimate product taking the form of dimensioned timber, spars and masts for ships, pile work, fencing and railway ties, furniture and structural timber, for all of which it ranks as one of the best of commercial timbers, while the bark is largely used in the tanning industry. The white fir also grows on the Pacific coast, and although it attains to great size, the wood is too soft in texture to be used for much else than the making of boxes and barrels, although it is anticipated there may be a future for it in connection with the pulp trade. Allied to it is the balsam, which, however, is chiefly found in Ontario and Quebec and in the sub-Arctic forests which range in a north-westerly direction

towards the Athabasca River. In this case also the softness of the timber militates against its commercial value.

The hemlock, an important tree which grows profusely in the forests of the Maritime Provinces, Quebec and Ontario, supplies a coarser kind of lumber. It commands a price which can nearly compare with that of pine, to which wood, indeed, it is little inferior. It is in great demand in connection with dock and wharf construction, while the bark finds a ready market in Canada and the Eastern States of the American Union in connection with tanning operations. Another variety of this tree, the Western hemlock, is found in great quantities in the coastwise forests of British Columbia, and also in those of the interior provinces where the rainfall is adequate for its growth. The Selkirks abound with it, the trees running up to 150 feet in height. Like the hemlock of Eastern Canada, it has a coarse wood, and has not yet quite outlived the prejudice which this fact created, although it is known that it can give as good an account of itself in work for which it is suitable as other more expensive timbers.

The balsam poplar, sometimes known as the "Balm of Gilead," is just about as widely distributed throughout Canada as the aspen poplar, already mentioned, and frequently attains, particularly in the North-West, a height of 150 feet, with a diameter of about seven feet. Great specimens of this tree are met with as far north as the Arctic Circle. Its industrial uses are much the same as those of the aspen poplar, and it is extensively used in pulp-making. Another type of tree which grows in abundance in the forests of Quebec, Ontario and New Brunswick, though, curiously enough, but rarely in Nova Scotia, is the arbor vitæ, or white cedar, which is chiefly used for telegraph and telephone poles, for the supply of which it holds practically a monopoly in Eastern Canada, owing to its durability when exposed to the weather or when in contact with the soil.

The red cedar, known as the giant arbor vitæ, figures next to the Douglas fir in economic importance in British Columbia. It grows to greatest perfection in Vancouver Island, and it rivals the Douglas fir in the height and diameter which it is capable of attaining. The production of shingles is its speciality, these being now chiefly made by machinery. At the same time the wood is capable of taking a brilliant polish, and is consequently largely used now in the furniture trade, and also for interior decorative work. The old-time Indians well knew its weather and moisture-resisting capabilities, and the great canoes with which they navigated the Western waters were from choice made from red cedar. Still another cedar, the yellow cyprus, is a familiar constituent of the forests which fringe the coast of British Columbia and those of the neighbouring islands. It possesses a peculiar

pungent odour, is very durable, its close grain enables it to accept a high polish, and it promises to have a great future in connection with the furniture-making and decorative trades, amongst which it commands a higher price than either the arbor vitæ or the Douglas fir.

The ash is represented in the Canadian forests chiefly by the white and black varieties, the former ranging from Nova Scotia to Western Ontario, supplying strong and elastic timber in large dimensions, and the latter ranging from the island of Anticosti to Manitoba. The white variety is always in active demand in connection with agricultural implement and wagon, carriage and sleigh building, while the black variety is more suited for basket-making and cooperage work. The red ash and the green ash are also found, differing little in a commercial point of view from the other two species.

The elm is also widely distributed throughout the Dominion, the American, or white variety, being found from Nova Scotia to Manitoba, increasing in its dimensions the further West it ranges. It supplies a heavy and strong, if not very durable, timber, and it is largely used for flooring purposes and the manufacture of furniture, coffins, barrels, wheels, chairs, and sugar-boxes. The rock elm is found in Quebec and Southern Ontario, and is held in much favour by furniture manufacturers, shipbuilders and agricultural implement makers, being tough and elastic and at the same time capable of taking, when required, a beautiful polish. The red elm is of much less commercial importance, but its inner bark possesses medicinal qualities of some value.

Then the birches figure prominently amongst the forest constituents, the red birch being generously distributed from Nova Scotia to Lake Superior, and attaining its highest development to the north of the St. Lawrence and Ottawa Rivers. It is a most important timber for the Canadian furniture manufacturers, and is also exported for furniture making in the log and in semi-manufactured conditions. Wider still is the distribution of the white birch, which is found practically all over the Dominion, from the Atlantic to the Pacific, and away to the unexplored limits of the Far North. Its hardness and close-grained texture especially adapt it for the manufacture of bobbins, spools and wooden ware, but it is also in demand as finishing timber for interiors and for furniture manufacture.

The oak occupies an important place amongst the commercial trees of Canada. The *Quercus alba*, or true white oak, finds its principal home in Ontario and Western Quebec, and so also does the bur oak, which, however, ranges eastward to the Maritime provinces, and westwards to Manitoba. The white oak is valued in shipbuilding, agricultural implement making, furniture work,

and interior finishing, and in the latter capacity its grain and colouring show to advantage owing to their considerable diversity. The bur species is chiefly used for timber work which has contact with the soil, such as railway ties, fence posts and piles. The Western white oak, which is chiefly confined to Vancouver Island and parts of British Columbia, closely resembles the English oak, and gives beautiful results when manipulated by the skilful furniture manufacturer, a remark which applies in nearly equal measure to the red oak, although the quality of its timber is somewhat inferior. This oak is to be found all over the Maritime Provinces and away westward to Lake Superior.

Another wood held in high favour in the cabinet-making trades is the Canadian black walnut, although the older trees have now been nearly exhausted, and the newer plantations which have been started in Ontario and Quebec have not yet for the most part reached a commercial stage. Amongst other trees which contribute to the commercial wealth of the Canadian forests are the beech, which flourishes in Eastern Canada generally, and is largely used in the production of carpenters' planes, tool handles, moulds, and turnery; the chestnut, which is also consumed in the cabinet factories of Ontario, and is employed in heavy constructional work; the hickory, which is used in farming implements, axles for vehicles, handles of all sorts, and fishing rods; and the butternut, which somewhat resembles walnut, and is consequently used in furniture trades.

But the list of commercial woods which the Canadian forests yield is seemingly endless, and I need only remark further that bass-wood, which attains its greatest size and perfection in Ontario, is largely responsible for the success which has attended the wood-working industries of that province. It is the chief timber used as the basis for the manufacture of wooden ware and toys, and it enters largely into the production of the cheaper kinds of furniture, the bodies and panels of carriages, and the wooden portions of farming implements, while it is also extensively used in the construction of boxes and coffins. As a veneer it is converted into band-boxes, cheese-boxes and fruit-baskets and boxes, and in a three-ply form it is familiar to many of us in this country in the guise of chair-seats.

As the "Land of the Maple," Canada naturally presents a variety of maple trees, which are found, of one kind or another, all over the Dominion, although, as stated in another chapter, so far as the manufacture of maple sugar is concerned, the tree attains greatest perfection in the Eastern parts of Quebec. The hard or sugar maple, is familiarly met with wherever one goes, from Nova Scotia to Western Ontario. Its timber makes the best possible firewood, but it has a more permanent industrial value as a wood

and veneer for furniture manufacturers and picture-frame moulding makers, the beautiful "curly" and "bird's eye" varieties enjoying quite a cosmopolitan reputation. Its wood is so close-grained and hard that the number of articles which can be manufactured from it is legion itself, ranging from butchers' skewers to mangle-rollers, boat keels to Indian clubs, and hand-spikes to chair-parts. It is also largely used in smelting operations, and in the manufacture of charcoal.

A softer kind, the red maple, is similarly distributed to the harder variety, and although largely used for butter-making barrels and kitchen-ware, it is not by any means so utilitarian as the harder variety. A similar remark applies to the broadleaf maple, which is chiefly confined to British Columbia and Vancouver Island. Nevertheless, its closer grain adapts it in a special measure for decorative work and veneers.

With such inexhaustible resources in timber as the Canadian forests present, and such a variety of the principal woods used in the world's industries readily available all over the Dominion, it is not surprising to find that Canada not only enjoys a lumber and saw-milling industry on an immense scale, but also has a variety of important wood-working interests which are being developed on a rapidly increasing scale in Quebec, and more particularly in Ontario, British Columbia, and the Maritime Provinces. A large and prosperous export trade in lumber and manufactured timber in its various forms has also been developed, and the future is fraught with commercial possibilities of the most significant character.

CONCLUSIONS :

That probably no country in the world possesses greater Forest Resources in Commercial Timber than Canada.

That the Canadian Wood-working Industries are rapidly increasing in number, in the variety of their products, and in the activity of their operations.

That immense scope for the employment of British capital presents itself, especially in British Columbia, where already it is largely invested in several lumber enterprises.

CHAPTER III.

THE LUMBER AND TIMBER-WORKING INDUSTRIES OF CANADA.

THE LUMBER INDUSTRY OF BRITISH COLUMBIA.—THE PROVINCE AN EXPORTER OF LUMBER TO THE UNITED STATES, THE ORIENT, SOUTH AMERICA AND AUSTRALIA.—MORE ABOUT THE DOUGLAS FIR.—LUMBERING OPERATIONS IN NOVA SCOTIA.—THE FOREST RESOURCES OF QUEBEC AND ONTARIO.—SOME CANADIAN TIMBER STATISTICS.—CANADIAN TIMBER EXPORTS.—BRITISH IMPORTS OF CANADIAN FOREST PRODUCTS.

IN coming now to deal in more specific terms with the lumber and timber-working industries of Canada, I propose first to consider the position and prospects of British Columbia in these connections, not because the other provinces have no claims upon my attention—quite the reverse is the case—but because the Pacific Coast Province has a somewhat special interest at present, so far as forest resources go, for the British investor. As a matter of fact, British capital is already largely, and is becoming increasingly, interested in the development of the various resources of British Columbia, and at the present time the Province is taking a leading place amongst her sister provinces in promoting the wider sweep of that wave of industrial prosperity which is now seemingly carrying all before it throughout the Dominion of Canada.

The vast Province of British Columbia, comprising as it does an area of about 50,000 square miles—an area, that is, greater than those of England, Scotland, Wales, Ireland and France combined—has enormous potentialities in agriculture, mining, fruit-growing, fisheries and lumber, but it is the lumber resources of the Province, perhaps more than any of the others, which present the most feasible, and, even agriculture not excepted, the most readily accessible source of wealth.

I noticed from Vancouver papers which lately arrived that Mr. Byron E. Walker, the President of the Canadian Bank of

Commerce, recently delivered an address in Vancouver, in which he remarked of this Land of Promise that: "In some of the great things British Columbia has to do she has not yet made even her first start. In the richness and depth of the soil," he continued, "and in the great range in the quality of the soil, you have a land in which you can do anything, from raising cattle on bunch grass to the most highly-developed cultivation the world has known. When one considers it, British Columbia has the vastest storehouse in North America of undeveloped resources. . . . She has the greatest store of timber in the world." It seems, therefore, on all hands to be conceded that if there is any one natural resource that British Columbia possesses which is more calculated than another to come out on top, and to offer the best prospects for remunerative exploitation, it is her forest wealth.

This view seems to be very generally held by the colonists in British Columbia, and it corresponds with the impression which I gathered in different parts of Canada during my travels. The lumber and allied industries have already attained dimensions of very considerable industrial importance, and I learn that the number of timber licences issued in the Province during 1906 was 4,000, as compared with 5,000 during the three years immediately preceding. At the same time the acreage covered by the licences has, according to a special correspondent of the *Toronto Globe*, increased in an equivalent ratio, having risen from 836,480 acres in 1903 to 2,560,000 acres in 1905.

As this correspondent reminds us, every licensee of timber lands east of the Cascade Mountains has to pay an annual rent of 115 dollars, and west of the mountains an annual rental of 140 dollars. It will be understood, therefore, in what an important and much-desired way this development has contributed to the revenues of the Province. The exact figures of the cut for 1906 are not yet available, but it has been authoritatively estimated at 600 million feet, an increase of about 127 millions over that of the 1905 cut, whereas at the census year of 1901 the figures were, as stated in the previous chapter, placed at 219,027,971 feet. Moreover, as last year's prices ruled at a higher level than those of 1905, it is estimated that the value of the timber production of British Columbia for 1906 is hardly likely to be less than 9,500,000 dollars.

Nevertheless, the lumber and timber industries of British Columbia are still in their infancy. They are developing steadily, even rapidly, and great are the hopes that are built upon them. Strange as it may seem, the great advances that they have made within the last year or two are mainly due to the increased exports of the forest products of the Province. It seems almost like

sending coals to Newcastle for British Columbia to export lumber and wood for fuel purposes to the United States, but still she does so, and the great timber-producing country on the other side of the International Boundary is as yet her best customer.

Moreover, the Province is assiduously cultivating her export trade with the Far East. Not only is she exporting thither butter, cheese, fish and Alberta fall wheat in ever-increasing quantities, and receiving in return the teas and spices, the fruits and the curios of the Far East, but she is extending her timber trade with the Orient, and developing her shipments of lumber to South America, Australia, and many more distant markets, which a few years ago had not been tapped by her lumber shippers. Thus we find that her coast cities mark the very doorway of the Far East, and it would seem strange if the good fortune of geographical situation, *plus* the remarkable potentiality in natural resources, which have made the fortune of Seattle and brought it wealth and population, should not similarly become the lot of the no less favourably situated coast cities of British Columbia.

I have already explained in a previous article how the Douglas fir, the Sitka spruce and yellow cypress, the giant arbor vitæ and the western hemlock flourish to such magnificent maturity and splendid commercial purpose in the rugged valleys and virgin forests of British Columbia, with many another valuable tree to supplement their industrial utility. But, of all the trees of the Province, to the Douglas fir must be conceded the first place, and so far as it is concerned I believe I am not over-stating the case when I say that more than 500,000 feet of this wood have been cut to the acre in some parts of the Province, although this, of course, exceeds the average, which, taking the cuts of the various districts all round, probably approximates about fifty or sixty thousand feet per acre, the rule being that trees of more than five feet or less than two feet in diameter are not used.

Moreover, it is a fortunate provision made by generous Nature that the largest Douglas firs and those most suitable for commercial purposes are ordinarily found in greatest numbers within easy distance of the coast. This fact is of immense importance in facilitating the handling of the logs and effecting their rapid conveyance from the forests to the mills, the majority of the latter being so located with regard to shipping that the largest timber vessels can be loaded practically direct from the saws. Under these circumstances Douglas fir can be handled in British Columbia at a rate which enables it to compete favourably with that which is cut and transported under less satisfactory conditions elsewhere, and especially south of the International Boundary, where, however, the sawmills are more numerous than as yet is the case in British Columbia.

Everything points to a great future for the lumber interests of British Columbia, which are only yet in the infancy of their development on a modern commercial scale. No one who has not travelled through the country can readily realise the immense resources which the province possesses in timber, and the colonists are enthusiastic as to what the next few years will bring about if matters continue to move as they are doing now. There is at present a good deal of British capital invested, in an unostentatious sort of way, in lumber enterprises in this region, and there are great hopes that more still will be forthcoming to speed the efforts of the logger and help the wheels go round in the big saw-mills which are dotted about the coast, the number of which, it is hoped, will be vastly increased before many years are past. I think I am right in stating that British investors will regard any new lumber enterprises which are submitted to them under favourable auspices with sympathetic consideration, for no province in Canada appeals more readily to the British capitalist than British Columbia.

Another province of the Dominion which offers great scope for development in the matter of her lumber and timber-working industries is Nova Scotia, which throughout last year experienced unprecedented activity in these branches of her trade. The extent of the lumber operations of the province may be understood from the fact that the annual export amounts to from 200 to 225 million feet, which represents a payment of no less than two million dollars to wage-earners, while the estimated value of the forest products of the province for 1906 is placed at 4,750,000 dollars. Moreover, prices reached an unusually high level during last year owing to the unprecedented demand for lumber, and especially for white pine, spruce, and hemlock, for all parts of the United States.

It is a huge mistake to assume, as many do, that the export trade of Nova Scotia in forest products is limited to the United States and Great Britain. As a matter of fact, the province exports largely now to the West Indies, South America (and especially to Argentina), the Cape Verde and Canary Islands, and elsewhere. Thus quite a cosmopolitan market is being secured. Under these circumstances there is abundant scope for the further exploitation of her timber resources, and these are still great, although the day when timber limits on virgin lands could be readily secured is gone. For it is a regrettable fact that the forest growths of the Crown lands are approaching exhaustion, and supplies for the lumber industry of years to come must be looked for in the younger-growing trees of to-day, which require a period of from thirty to thirty-five years to reach a degree of maturity suitable to render them of commercial value.

Notwithstanding this fact, the outlook is, on the whole, so roseate that it has led a Nova Scotia lumber exporter, Mr. F. C. Whitman, to express himself, in an article contributed to the *Halifax Morning Chronicle*, to the effect that the lumber output of Nova Scotia might well be likened to the grain crop of the West. In his article Mr. Whitman very properly lays great stress on the importance of conserving the forest resources that remain to the utmost extent, by making more drastic prudential methods of cutting and dealing with the trees compulsory. "The lumber industry of Nova Scotia," he emphasises, "is of so great importance that if anything should happen to stop the operations of the established mills and factories that are situated in all parts of the province it would immediately be felt as a calamity. A large number of towns and villages, particularly in Western Nova Scotia, owe their very existence to the lumber trade."

It seems strange that it should have been so late in the day before the Canadian lumbermen became alive to the fact that reckless cutting and thinning of timber limits was suicidal. There can be no question that—not only so far as Nova Scotia is concerned, for the remark applies with equal force to all the provinces in the Dominion—if the cutting of timber were, as Mr. Whitman points out, carried on by lumbermen with a view to taking only the merchantable wood and giving the small trees a chance to grow, "there is," as he puts it, "every reason to believe that when other countries are completely denuded of forests Nova Scotia would still be able to supply the market with as good merchantable lumber as can be manufactured to-day, and without diminution of the present export."

It is surprising to hear the amount of manufactured lumber which some of the large saw-mills of Nova Scotia produce. For example, the Davison Lumber Company, which employs about a thousand men, produces on an average six million feet per month at its two water-driven mills at Bridgewater and its large steam-mill at Springfield. The latter establishment, I understand, is one of the most completely and modernly equipped saw-mills in the province. For one thing, it has a hot pond which enables the mill to run all through the winter. Then the logging equipment is on a most complete scale, including as it does a standard-gauge railway of thirty miles in length, with the requisite locomotives and rolling-stock for logging purposes, besides 160 horses of its own, supplemented by hired teams for hauling the timber to the loading point.

According to what I have recently read in the *Halifax Morning Chronicle*, this firm during last year chartered no less

than ninety vessels, representing a total tonnage of 40,000 tons, for its export trade, which represents something like 40,000,000 feet of manufactured lumber, shipped to the United States, South America, the West Indies, and the islands off the West African coast. But there are many other extensive and flourishing concerns in Nova Scotia which might be particularised but for the exigencies of space.

Lumber is a big interest in Nova Scotia's neighbouring province of New Brunswick, to whose timber resources I have already made some brief reference; and of course Québec and Ontario have immense forest wealth upon which they draw to the best commercial advantage. Lumbering flourishes especially in these two provinces, and the port of Quebec depends very largely for its shipping trade upon the demand for the forest products of the province. Ottawa, too, as I mention elsewhere, is an all-important head centre of the lumber industry for the province of Ontario. It is impossible, however, for me to deal in detail with all the provinces of the Dominion individually in this connection, and I have enlarged more particularly upon the lumber and timber working resources of British Columbia and Nova Scotia because, in these provinces, British capital seems to be more distinctly associated with the industry than is the case in Quebec and Ontario.

And now for a feast of fat things in the shape of portentous and suggestive figures, for a few authentic statistics will enable my readers to see, approximately at least, to what extent Canada has turned its immense forest resources to commercial account, and how far efforts in this direction have been progressive. The Census returns for the year 1881 showed that the output of timber, lumber and their manufactures amounted in total value to 55,407,543 dollars, produced at 9,838 places or establishments, and representing an invested capital of 35,305,926 dollars, and giving employment to 61,220 wage-earners. By 1891 the total value of the output of timber and lumber and their re-manufactures had increased to 85,979,499 dollars, produced at 11,615 places or establishments, and representing an invested capital of 77,519,486 dollars, and giving employment to 81,757 wage-earners.

In 1901 the output of timber and lumber and their re-manufactures declined in value to 80,341,204 dollars, and the number of wage-earners employed to 75,704, while the capital invested had increased to 89,959,336 dollars. In the last-mentioned year—the last for which complete figures are available—the amount paid in wages for labour aggregated 18,966,763 dollars, and the cost of the materials handled amounted to 39,087,761 dollars. At this time, and subsequently, Canada suffered from depression,

but now her industries are on the crest of a wave of unprecedented prosperity, which would enable a Census return taken at the present time to show a vast improvement in practically all branches of activity; and from what I saw and heard when I was in Canada I should be surprised if the principal branches of the lumber and timber interests proved exceptions.

It is interesting to note also that the sum total of these latest figures which I have quoted included several surprisingly large individual totals. Of these the most important was the return for the log products, the output of 2,075 places or establishments, the production being valued at 50,805,084 dollars. Then the lumber products from 467 places or establishments reached a total value of 10,754,959 dollars; manufactures in furniture and upholstery, produced at 169 establishments, were valued at 6,949,384 dollars, the furniture industry and its allied trades having now attained a position of great and increasing importance in the Dominion; and chemical and mechanical wood pulp, as mentioned in another chapter, was produced to the value of 4,246,781 dollars. The rest of the re-manufactured timber produced in Canada ranges from artificial limbs to sugar-boxes, billiard tables to windmills, coffins to refrigerators. Fifteen establishments were engaged in basket-making, five in the manufacture of matches, fifteen in the production of picture-frames and mouldings, 34 in the production of miscellaneous woodwork and turnery, and 64 in the manufacture of barrels.

Although in most of the principal timbers of commerce the Canadian forests render the Dominion independent of supplies from extraneous sources, nevertheless the requirements of her manufactures into which wood enters largely necessitate her importing certain kinds of timber and forest products from other countries, notably from the United States. In 1905 Canada imported articles of this description to the value of 6,191,453 dollars, of which 4,846,798 dollars represented her imports of lumber and timber. Of this last total oak represented 1,200,981 dollars, and boards, planks and deals of various woods made up a value of 2,347,614 dollars.

The rapidly-increasing furniture and kindred industries of the Dominion necessitated the importation of considerable quantities of fancy woods, such as cherry, chestnut, mahogany, walnut and white ash; while for constructional purposes pitch pine was imported to the value of 405,733 dollars. Logs and round unmanufactured timber of various kinds were imported to the value of 479,791 dollars, and fence posts and ties to the extent of 376,014 dollars. Her importations of manufactured hickory are also considerable, these being mainly in the form of billets, spokes for wheels and felloes. Cork wood was also imported to

the value of 79,095 dollars. All of which is satisfactory, inasmuch as it indicates that the industries of Canada which utilise various kinds of wood are in a healthy and progressive condition, as the great bulk of the woods that are imported are not grown in the forests of the Dominion, or cannot be conveniently or remuneratively worked.

Although the demand of the various Canadian provinces for their own forest products is yearly increasing and must attain still greater dimensions as the population of the Dominion becomes augmented and its industries expand, still it is to the development of its export trade in timber products that Canada must necessarily look for the great advances in its lumber, saw-milling, and wood-working industries, which it is confidently hoped will contribute in the future in so large a measure to its prosperity. Regarding the export trade of Canada in forest products, the figures for 1906 are not yet accessible to me, but the totals for 1905 and the five previous years are as follows :—

| Year. | | | | | | | Dols. |
|--------------|----|----|----|----|----|----|------------|
| 1905 | .. | .. | .. | .. | .. | .. | 33,235,683 |
| 1904 | .. | .. | .. | .. | .. | .. | 33,091,922 |
| 1903 | .. | .. | .. | .. | .. | .. | 36,386,015 |
| 1902 | .. | .. | .. | .. | .. | .. | 32,119,429 |
| 1901 | .. | .. | .. | .. | .. | .. | 30,009,857 |
| 1900 | .. | .. | .. | .. | .. | .. | 28,737,237 |

From these figures it will be seen that 1903 was a booming year in the timber exports of Canada, though in few other branches of trade, and probably I shall not be far wrong if I suggest that the exceptional total of that year was due to special circumstances.

Taking the 1905 figures as a basis of the export trade of Canada in its various products, the figures for that year show that so far as the lumber interest is concerned the principal item comprised planks and boards, which were shipped to the value of 6,898,769 dollars. The second place was held by deals, the exports of which amounted in value to 2,076,922 dollars. Then followed shingles valued at 1,620,567 dollars, laths representing 1,072,339 dollars, and scantlings and joists equivalent to 868,401 dollars. Then, in the order given, with much smaller totals, were box and other shooks, deal-ends, staves and pickets. In other manufactured or semi-manufactured timber, squared timber of all sorts was exported to the value of 1,531,873 dollars; sleepers and railroad ties, 180,883 dollars; and piling, 142,564 dollars; with pine or cedar shingle bolts, cedar and other posts, telegraph, hop and other poles, match-blocks, and masts and spars bringing up the rear. Besides, Canada exported pulp-wood in 1905 to the value of 2,600,814 dollars, and timber in logs to the value of

479,776 dollars. The wood which principally contributed to this log total was spruce, elm taking second place, and pine third place.

In this connection I find from our own Board of Trade returns that this country is an increasing customer for the produce of the Canadian forests, and, so far as our imports of timber are specifically detailed, I gather that for hewn fir, oak, teak and other timbers (excluding pit props and pitwood) our imports from Canada in 1906 amounted in value to £481,009 (which total exceeded the value of the imports in 1905 by £96,911), Canada taking fourth place amongst our sources of supply, her total being exceeded by those of the United States, Russia and the British East Indies, in the order given. Then as regards our imports of sawn, split, planed or dressed timber, Canada comes second in the list with shipments to us in 1906 of a total value of £4,188,386, which total exceeded those for 1905 by £920,875. Our only source of supply in this kind of timber whose shipments exceeded those of Canada was Russia, the value of whose contribution was £5,973,305.

It will therefore be seen that Canada is doing well with us with regard to the products of her forests, and there is every encouragement for her to still further develop this branch of her trade. As I have said before, sentiment and considerations of trade do not always assimilate readily, but underlying all John Bull's commercial astuteness there is a strong undercurrent of patriotic feeling, and he would rather, other things being equal, buy his timber from his own kinsmen in Canada than he would from any foreigners, however closely they may be related to him, or however friendly they may be in every respect. It is for the Canadians, therefore, to reciprocate this feeling by encouraging its export trade in the direction of this country by every means in its power. The development of Canadian forest resources offers immense scope for the investment of British capital, an increasing volume of which, it is satisfactory to note, is already finding its way to British Columbia, whose future as a lumber country appears to offer special opportunities for its profitable employment.

CONCLUSIONS :

That none of the natural resources of British Columbia shows greater prospects of remunerative industrial development than the Forests of the Province.

That any legitimate Lumber enterprise projected under reassuring auspices, and affording reasonable promise of a safe investment and a fair return, will receive sympathetic consideration at the hands of British capitalists.

That British Columbia promises to become one of the greatest Timber-producing countries in the world.

CONCLUSIONS (*continued*):

That 1906 was a record year in the Lumber Industry of Nova Scotia, and that abundant opportunity presents itself in that Province for further developments.

That nearly all the Provinces in the Dominion present great unexploited resources in Forest Wealth, the products of which should form one of Canada's most valuable prospective assets.

CHAPTER IV.

LOGGING IN THE CANADIAN FORESTS.

A LOGGING CAMP IN THE FOREST.—CUTTING LOGGING ROADS.—
TREE-FELLING WITH AXE AND SAW.—A LOG DRIVE.—
A LOG "JAM" ON A CANADIAN RIVER.—THE LOGS AT
THE SAW-MILLS.

FROM all I was able to gather, it seems that there is a general family resemblance between the methods of logging employed in the lumber camps in the different Provinces of Canada, so that, while these differ in detail, as climatic and physical considerations render necessary, it may be said that one general system prevails throughout the lumber regions of North America, modified to suit local circumstances. Wherever possible, the mills are situated at points convenient for the shipping or rail transport of the logs, but this is not always practicable. Under any circumstances, logging operations have to be conducted sometimes at considerable distances from the mills, and in these cases camps are established on the spot where cutting operations have to be prosecuted.

Huts, or shanties, usually built of logs, are situated within convenient reach of the densest part of the forest to be cut, and these shanties are built to house any number of men, from about twenty up to seventy-five or more, who are usually under the charge of a foreman or superintendent. An all-important functionary at a lumber camp is the cook—sometimes assisted by a subordinate when the number of men warrants such a provision—who prepares the food for the crew. Naturally, logging is hungry work, as well as hard, and the crew in a logging camp have to be fed well if the best is to be got out of them, and if they are to be rendered amenable to rapid working and discipline, for there is a good deal of human nature about the logger, and the nearest way to his heart is, undoubtedly, down his throat. It is a rough life and a strenuous one, but it is healthful where the constitution is strong, and there are many less picturesque sights in the industrial world than a lumber camp up-country in one or other of the Canadian Provinces.

Necessarily an important preliminary step in connection with operations in the forest is the cutting down of brushwood, stumps and other obstacles to locomotion and transport, as suitable logging roads have to be prepared before cutting operations actually commence. These roads, I believe, are chiefly laid out in the summer and autumn, so as to be ready for logging operations by the time the season commences, which is, curious as it may seem to us at home, with the advent of winter, continuing until the spring, although I do not know that in all parts of Canada there is any hard-and-fast line drawn of this description. Ordinarily these logging roads lead from the forest to the nearest stream, where the logs are banked. The snow exercises a useful function in filling up holes and interstices, and this rough-and-ready sort of engineering makes a wonderfully good road when coated with a fall of snow for the runners of sleds or sleighs, by means of which in many cases the logs are conveyed to the water-side. Indeed, when good sledding facilities are available, a certain amount of assurance is provided for a good lumbering season, for good sledding not only promotes rapid transport, but indicates a sufficiency of water later in the season, when the ice and snow melt, to convey the logs down-stream to the mills.

In cutting down the trees the axe is used, but the double-handed saw is more in evidence where the operations are conducted on anything like a large scale. I am told that the fall of a tree, which is regulated by the use of wedges inserted in the saw-cut, can be so arranged by the expert fellers that they can make a huge tree, with its three or four feet of diameter, drop precisely where they wish, and, if necessary, between any two particular trees or stumps they may desire.

Other men there are whose duty it is to mark each log with an individual mark, like the branding of live-stock in the West, and then the fallen trunk is operated upon by the cross-cut sawyers, who, by means of a double-handed saw, cut it into convenient lengths for transport. Then these logs are dragged by oxen or camp-horses to the nearest skid-way on the logging road—and tough work it is sometimes, this dragging. Next the loading of the sleds is proceeded with, and is accomplished by means of horses and suitable tackle. Sometimes these sleigh-loads, I was told, will weigh, in some parts of the country, as much as from seventy or eighty to a hundred or more tons, the number of logs varying according to their size.

The distance which these sleighs have to cover varies from less than a mile up to anything like twelve or twenty miles, and accordingly the cost of transporting on the logging roads varies from anything between $2\frac{1}{2}$ dollars to 4 or 5 dollars per thousand feet. Railway transport in many cases supersedes the sledding.

However, the better the logging road the less the cost of transport, and nothing so much facilitates the rapid moving of the logs as when the ground has been previously covered with suitable falls of snow.

When the logging sleds reach the banking grounds, which are points chosen on the frozen surface of the river, the logs are piled up thereon to await the breaking-up of the ice by a general thaw. Sometimes the streams are dammed at convenient points, so as to increase the amount of water available when a general thaw takes place; and when the break-up of the ice does occur, excitement runs high in the logging camps, and operations have to be conducted with the greatest skill and promptitude, the logs being worked out of the smaller streams into the larger rivers with all speed, to prevent jamming. The work of circumventing a "jam" and the driving of the logs is very dangerous, as well as being hard and cold work into the bargain. The log-driver usually wears spiked shoes, and he manipulates the logs with a heavy, hard-wood lever, iron-spiked at the end.

Those who have seen a log-drive cannot fail to be astonished at the agility and coolness with which the driver leaps, or walks, as the case may be, from one log to another, with the risk of immersion, or something worse, as a contingency which might happen at any moment were he less expert than is usually the case. Once down the main stream the logs have to be sorted, as in many cases the owners of various lumber limits pass their logs down the same river, and they necessarily become mixed up in the process of their happy-go-lucky navigation. The sorting takes place in "booms," from which various passages, separated from one another by "boom-sticks" anchored in such a manner as to form a succession of piers along the river, emerge. The logs, of course, are distinguished by their marks, in the same way as cattle on the prairies are distinguished by their brands, and as they are sorted and passed into the various "booms" or "pockets" of their respective owners records are taken of each log as it passes.

A log "jam" is quite a common thing, especially in the narrower rivers, where the current is swift or swollen, and, in fact, a log "jam"—and more particularly the liberation of the jammed logs—is one of the sights of Canadian up-country life. Sometimes nothing short of a liberal use of dynamite enables the primary obstructing log to be removed. In other cases—a matter of much greater danger and difficulty—the "key" to the "jam" has to be negotiated by actual hand-work on the log by axe, and great pluck is necessary on the part of the wielder of the weapon. Every movement has to be calculated with the

readiest resource and the maximum of rapidity, and a false move may mean disaster, for it is no joke to have to shift the "key" of a "jam" which has behind it anything from perhaps three thousand to five or ten thousand logs.

It was not my luck to see a "jam," or the liberation of one, for I was in Canada at the wrong season for such an exciting experience, but a more picturesque pen than mine has described such a sight. "There was a pause," writes the author to whom I refer, "a strange stir, far and near, sounds of fierce jostle, crush and grind, and the huge mass broke up and began to sweep by with indescribable tumult, now stayed a second, now off again. Amid strange, shrieking, grinding notes of the fury of intense frictions, a forest of logs flew past. . . . Trunks 40 feet long shot out here and there, straight up in the air. . . . White and yellow jets of tortured water dashed up to half the height of the bluff, from a churned mass of foam, thick and spummy with the shed sap and ground bark. . . . And the loggers rested silent on their axe-helves or log-hooks."

Once the logs get to the saw-mill a different kind of manipulation altogether commences. And here let me say that the operations conducted in the big saw-milling establishments in Canada are very different from those which we see even in the biggest saw-mills in the Old Country, although there is necessarily a certain family resemblance between the methods adopted, only in Canada everything is usually on a more ambitious scale. Saw-milling operations seem to be carried on in the lumber districts upon what I might describe as triple-expansion principles. But, of course, this country of ours is not a timber-growing land in the transatlantic sense of the term, and so both the mechanical equipment of the saw-mills and the general practice vary accordingly.

Then even in Canada the methods adopted are not always uniform. They differ according to locality and other exigencies. But speaking in the broadest way, and from a non-expert point of view, the manner in which the logs are conveyed from the river to the saw-mill is in many instances, to use the words of the showman, "a thing which must be seen to be believed." It is certainly carried out on the boldest lines of transatlantic labour-saving 'cuteness, and, by means of various mechanisms and cunningly-contrived arrangements, the huge logs are handled with as much freedom as if they were planks, and with a precision which is surprising to the Eastern mind.

After scaling and measuring, the log is ordinarily fed into the band-saw machine, which effects its operations in a surprisingly short space of time, cutting anything from 3 inches or less to 8 inches or more per rotation of the band saw-blade, which works

out roughly at from 250 to over 1,000 ft. per minute, after which the logs pass to another department of the saw-mill, in which they are converted into boards, planks, or timbers of various dimensions. The capacity of the saw-mills in the lumber districts of Canada, of course, varies very largely, but it is nothing unusual to have mills equipped with one or two or more band saws, each of which is capable of reducing from 25,000 to 50,000 ft. of timber per ten-hour day. I have been assured by those who have visited some of the big saw-mills in Nova Scotia, Northern Quebec, British Columbia and elsewhere that the experience resolves itself into a liberal education in the application of modern mechanics to the reduction of great natural resources to the service of mankind.

I might say much more on this same subject, and on the drying of the wood and its subsequent conversion into partially-manufactured, or wholly-manufactured, timber for constructional and other purposes, but such is a little beyond the scope of my present purpose, and imperatively beyond the limits of my space. Probably, however, what I have written in this and in the preceding chapters of this Section will suffice to indicate the sterling nature of the asset which Canada possesses in her as yet only partially-exploited forest resources, which present practically inexhaustible scope for Canadian enterprise, and are bound in the near future to offer numerous inducements for the profitable employment of British capital.

CONCLUSIONS :

That a Logging Camp in a Canadian up-country forest is one of the most picturesque industrial sights of the many extraordinary ones which Canada can present to the visitor.

That the logger and backwoodsman are amongst the most courageous and hardy types of workers that Canada can show—strong alike in constitution, muscle and nerve.

That saw-milling operations, as conducted in some of the larger Lumber establishments in Canada, are a revelation in the adaptation of high-grade modern machinery to the rapid reduction to commercial timber of the largest and most unwieldy logs.

CHAPTER V.

CANADIAN PULP-WOOD RESOURCES.

CANADA THE OWNER OF A VIRTUAL MONOPOLY IN THE SUPPLY OF PULP-WOOD FOR USE IN TIMES TO COME. — ANCIENT EGYPT AND MODERN CANADA: PAPYRUS THEN, WOOD-PULP NOW.—THE WOODS SUITABLE FOR PULP MANUFACTURE. —OFFICIAL COMPUTATIONS OF CANADA'S RESOURCES IN PULP-WOOD.—THE UNITED STATES INCREASING DEMAND FOR CANADIAN PULP-WOOD.

AMONGST the industries which have of late years established themselves securely on the soil of Canada positions of the highest importance must be accredited to the manufactures of paper-pulp from wood and of paper. The resources of Canada in those special kinds of wood from which paper-pulp is made are, by general consent, considered to be the greatest in the world. Sweden and Norway and one or two other European countries, and several of the great forest States of the American Union, are rich in pulp-wood, but for the most part those resources have been attacked in the past with such unscrupulous vigour, and with so little regard to reserves for future use, that the timber in those countries suitable for pulp-manufacturing purposes is becoming rapidly reduced, notwithstanding the efforts of the various Governments to conserve the remnants of what were, in most cases, magnificent natural heritages wantonly destroyed.

In Canada it has been otherwise—at all events latterly. The progress of ruthless destruction was wisely arrested in time, and the exploitation of the resources of the Dominion in pulp-wood has been conducted for the most part on scientific principles, which, while providing the most ample facilities for the utilisation of available material suitable for conversion into wood-pulp, has also provided for the absolute conservation of what it would have been unnecessary, if not useless, to cut down merely for the purpose of swelling current supplies of pulp-wood. Hence,

with its practically illimitable forest resources, rich in pulp-woods, exploited under stringent Government regulations which provide for their proper conservation, Canada now presents itself as the field to which the world must mainly look for a sustained supply of wood-pulp in the future.

It has been pointed out by those who are keen on analogies that in the matter of paper manufacture there is a curious, family-like connection between ancient Egypt and modern Canada. The former was the land of the early paper plant—the papyrus of familiar history—which, curiously enough, enterprise is now making efforts to utilise in modern paper manufacture—and the latter is the land of the modern paper tree, because, although paper is still manufactured from rag, esparto, straw and many other varieties of fibrous raw material, it is from wood that the great bulk of modern paper, especially “news-” paper is produced, and *The Financier* which the business man reads at his breakfast-table is to all intents and purposes a portion of a forest tree in another form—in short, so many leaves out of Nature’s own book. And so it has been gracefully said that the remote ages of the pyramid-builders and the rapid-thinking, rapid-moving twentieth century salute each other within the shade of the Canadian forests.

If it be a far cry from the reed-grown banks of the Nile to the forest-bound slopes of the St. Lawrence, the Ottawa, the St. Maurice, or the Fraser rivers, how much more remote is the papyrus of the Land of the Pharaohs from the exhaustless growing stocks of spruce in Canada! Yet these are united in a common bond, which has preserved its continuity through scores of centuries, for, just as the history of the young world was recorded in the papyrus of the stream, so the records of mature and more strenuous times are largely imprinted on the products of Canadian forest growth.

It happens to be rather unfortunate that just recently the Canadian pulp and paper industries have, not to put too fine a point upon it, been somewhat under a cloud, at least from the point of view of the British investor. This condition, however, it is obvious to anyone who can look beneath the surface, or see through a brick wall of financial and administrative fatuities, reflects in no way upon the intrinsic capabilities of Canada as a producer of pulp-wood, wood-pulp—which, by the way, are by no means the same thing—and paper. I propose to deal in this chapter more with the resources of the Colony in her possession of the ways and means for building up the greatest associated industry of its kind in the world than to stop, here and now, to examine the immediate causes which have led to something of a slump in those Canadian securities which are represented

by some, at least, of her existing pulp and paper-making undertakings. And let me also here explain that I deal in this Forest Resources Section with the Canadian paper industry because, so far as the Dominion is concerned, it cannot readily be dissociated from its sister industry, the manufacture of wood-pulp which, again, calls into requisition the pulp-wood which the Canadian forests supply in such unstinted measure.

When placed alongside of other pulp-wood-producing countries, Canada alone seems to emerge from the ordeal of comparison free from restrictive computations. The United States, Norway and Sweden chiefly, and a few other countries in lesser degree, have still resources at their disposal in pulp-wood forests, but it seems beyond question that, owing to the causes at which I have already hinted, the limit of their productive capacity in pulp-wood is within measurable distance, especially when one regards them in this particular from the point of view of international competition and marked exigencies.

Thus I cannot get away from the hypothesis—the result of such investigations as I was able to make and such information as I was able to gather while I was in Canada—that it is quite unnecessary in setting any sort of approximate valuation upon the resources of Canada in pulp-wood to assert that her riches in that particular will suffice for all time. More modest calculations go far enough for all practical purposes when they indicate with confidence that for many centuries to come Canada is equipped with forest resources which will enable her to supply the world's requirements in pulp-wood—that, indeed, she possesses a virtual prospective monopoly in that at present indispensable raw material for the paper-maker.

In writing as I do, I proceed, of course, from the standpoint of a business man and financial writer rather than from that of a pulp-trade expert. I make no claim in the last direction, and I deal, therefore, only with what I have either seen with my eyes or heard with my ears, the results of which I have been able to assimilate with regard to circumstances connected with the establishment and progress of an associated industry which promises in the near future to be one of the Dominion's greatest commercial assets, and which has already attained to dimensions that entitle it to the highest consideration at the hands of British investors.

I should, perhaps, explain, *en passant*, for the benefit of those who are, like myself, non-expert, that all woods are not suitable for the purposes of pulp-making. Early efforts were confined to pine and poplar wood. Subsequently cedar, willow, hemlock, bass, birch and other woods were brought within the pale of experimentation, but ultimately it was found that the woods far

and away the most suitable were white and black spruce, Canadian balsam, poplar, aspen, and some descriptions of pines, of which, in technical estimation, spruce and balsam took top places, on account of the special quality of their fibre. Moreover, these are the very woods which the forests of Canada can supply in practically unlimited quantities, and, with judicious conservation, are capable of continuing to supply, if need be, for centuries to come.

In dealing with the pulp and paper industries of Canada it is desirable to consider the questions involved under three heads :—(1) The pulp-wood, being the basis of production, just as the ore is that of the metal extracted therefrom ; (2) the pulp produced from the pulp-wood, representing the raw material for paper manufacture ; and (3) the paper ultimately produced—the finished article, ready for the machine-rooms of the world's newspapers and printing factories. I come, therefore, first to glance in broad lines at the amount of pulp-wood available in the Canadian forests.

The Canadian Official Statistician has reported in this connection thus :—“ Far East the spruce grows along the shores of Hamilton Inlet, on the northern shores of the Gulf of St. Lawrence ; far North round Ungava Bay, and far North-West of the Coronation Gulf and at the mouth of the Mackenzie River the spruce matures and arrives at a good size. Far West along the fiords of British Columbia spruce abounds, increasing in quantity as one goes north, and the Douglas fir, a good pulp-wood, standing midway between the spruce and the balsam, is widely distributed, towering 250 ft. in the air, and having a base of from 20 to 30 ft.”

Then again, I find it stated in an official report that : “ From an investigation made in 1894, it appeared that from 38 to 40 per cent. of Canada consists of woodland and forests. This is about 1,400,000 square miles. If one-half of this area is spruce, there will be about 450 million acres of spruce area in Canada.” Now, in the manufacture of wood-pulp, according to the method chiefly employed to-day, a cord of spruce-wood is estimated to be equivalent to 650 feet of board measure, and from this quantity of wood half-a-ton of sulphite or chemical pulp, or a ton of ground-wood or mechanical pulp can be produced. Ordinary “ news-” paper stock in the paper mill is made up, as a rule, from about 20 per cent. of sulphite pulp and 80 per cent. of groundwood pulp.

As figured out by experts, the best spruce land yields about 7,000 feet of wood to the acre. Consequently, an acre of pulp-wood is equivalent to the production of about six tons of sulphite and $11\frac{1}{4}$ tons of mechanical pulp. Thus, taking groundwood pulp as the basis, and ten tons per acre as the product, it has been officially estimated that there are something like 4,500,000,000

tons of pulp-wood visible in Canada to-day. Further, as the paper mills of Great Britain and the United States consume roughly about 900,000 tons of pulp yearly, which is the product of about 90,000 acres of spruce woodland, it would, at that rate, take about 5,000 years to consume the existing spruce supply!

But as spruce reproduces itself in the sizes best suited for pulp-manufacture in a matter of thirty years, the first 90,000 acres of woodland cut over would not merely have thirty years in which to reproduce itself, but 5,000—and this, be it said, is not my own calculation, but that of the Canadian Government authorities. It is evident, then, that the spruce forests of Canada can, with ordinary care and prudence, hope to meet all demands upon them without fear of denudation by the lapse of time. Indeed, experts have calculated that an area in Canada equal to that of England could be cut over every year, and still the reproductive powers of the spruce would maintain the equilibrium of demand and supply. From these observations it will be seen that for all practical purposes the resources of Canada in the best pulp-wood are practically inexhaustible.

The United States has also extensive resources in spruce and immense areas of pulp-wood land still intact, but the great forests of Maine and other vast areas are so rapidly becoming denuded that for several years past the United States have found it necessary, in order to prevent, or at all events postpone, the exhaustion of their supplies of pulp-wood, to import it in large quantities from Canada. For the fiscal year 1906, Canada exported 593,624 cords of pulp-wood, valued at 2,600,814 dollars, and in 1906 to the value of 2,649,106 dollars, and all of this, of course, went to the United States, which in 1890 imported pulp-wood from Canada to the value of only 637,865 dollars.

It will be seen, therefore, how Canada's forest asset is being readily absorbed by its neighbours—and, indeed, year by year the United States are becoming increasingly dependent upon the Dominion for their supplies of the indispensable raw material for their pulp and paper mills, the demand for which they cannot adequately meet without unduly denuding or jeopardising their own natural resources. As a matter of fact, the States depend upon Canada at present for 38 per cent. of their pulp-wood, and, if we take into consideration their absorption of chemical and mechanical pulp from the Dominion as well, this percentage reaches the portentous total of quite 43 per cent. *Verb. sap.*

CONCLUSIONS :

That Canada, beyond all question, contains the greatest resources in Pulp-wood Forests which the world possesses. *Σ.*

CONCLUSIONS (*continued*) :

That Canada possesses a virtual prospective monopoly in the supply of Wood-pulp, the resources of the United States, Scandinavia and other European countries in Pulp-wood rapidly approaching exhaustion.

That the United States has already to import from Canada a very large proportion of the Pulp-wood required to meet its requirements in Wood-pulp.

CHAPTER VI.

THE CANADIAN WOOD-PULP AND PAPER-MAKING INDUSTRIES.

THE BEGINNINGS OF WOOD-PULP MANUFACTURE IN CANADA.—
MILL AND OUTPUT STATISTICS.—CANADIAN EXPORTS OF
PULP AND PAPER.—A LIST OF CANADIAN PULP AND PAPER-
MAKING ENTERPRISES.—BRITISH CAPITALISED UNDER-
TAKINGS.—RECENT FAILURES AND THEIR CAUSES.—CURRENT
DEVELOPMENTS AND PROSPECTS FOR THE FUTURE.—THE
BRITISH PAPERMAKER AND CANADIAN PULP.

HAVING in the preceding chapter made a brief survey of the resources of the Canadian forests in pulp-wood—that is, the forest trees suitable for use in the manufacture of wood-pulp—I now come to deal with the associated industries of wood-pulp and papermaking as carried on in Canada to-day. It was, of course, the most natural thing in the world that the Canadians, seeing the enormously valuable industrial asset with which Nature had bounteously endowed their country, supplemented as it was by some of the most magnificent water-powers in the world, should resolve not to let their enterprising friends across the International Boundary have the pick of all the plums. They decided themselves to establish a native pulp and paper-making industry, and although this may yet be said to be in its infancy, it is a robust juvenility of already vast and ever-increasing industrial significance.

In the Canadian Census reports of 1871 wood-pulp mills did not figure at all. The reports of 1881 enumerated five pulp mills, representing an invested capital of 92,000 dollars, and producing pulp to the annual value of 63,000 dollars. By 1891 these totals had increased to 24 pulp mills, representing an invested capital of 2,900,910 dollars, and producing pulp of the value of 1,057,810 dollars. Since 1891 the rate of increase has been more rapid still, but the Statistician of the Canadian Department of Agriculture found it necessary to admit his difficulty in keeping “track of the new enterprises begun, and of the old establishments enlarged.”

When the twentieth century opened there were, I believe I am correct in stating, 35 officially-recognised pulp-making enterprises in Canada, having a cumulative capacity of 387,000 tons a year, of which 204,000 tons were mechanical pulp, 17,550 tons soda pulp, and 160,000 tons sulphite pulp, the mills producing about 70 per cent. of their capacity. At the same time Canadian wood-pulp was being exported to the value of more than two million dollars per annum. At the end of 1905 Canada possessed 56 pulp mills, having an aggregate productive capacity of 2,470 tons of pulp per twenty-four hours. There were also 38 paper mills, having an aggregate capacity of 854 tons of paper per twenty-four hours. In January last year there were six additional pulp mills, having an aggregate daily capacity of 630 tons, and eight more paper mills, of a capacity of 375 tons, in course of construction, while other mills still were projected. The existing mills manufacture all grades of wood-pulp and most grades of paper. So that the Canadian pulp and paper industries are progressive, and, with certain exceptions, the individual enterprises are prosperous.

It may be interesting to indicate here and now the position of Canada as an exporter of pulp and paper to the United Kingdom. In the matter of pulp it is to be regretted that she has not within the last few years improved her position as an exporter to Great Britain, especially when compared with her arch-competitors in this connection, Sweden and Norway. During the year 1905 the United Kingdom imported mechanical and chemical wood-pulp from Sweden to the total value of £1,214,575, and from Norway to the value of £1,051,492, while Canada is responsible only for the small total of £206,113. There are explanations available which account to some extent for this position, but it must be admitted that they are inadequate.

What Canada loses as an exporter of the raw material, however, she gains to some extent as an exporter to us of the finished material, in the shape of unprinted paper, almost wholly "news," and of straw, mill and wood-pulp boards. The following figures indicate the progress Canada has made in this particular during the last few years :—

UNPRINTED PAPER.

| Year. | Quantity. Cwts. | Value. £ |
|--------------|--------------------|-------------|
| 1905 | 368,488 | 185,002 |
| 1904 | 166,967 | 90,584 |
| 1903 | 129,847 | 60,626 |
| 1902 | 157,193 | 82,656 |
| 1901 | 184,298 | 96,029 |

STRAW, MILL, AND WOOD PULP BOARDS.

| Year. | Quantity. Cwts. | Value, £ |
|--------------|--------------------|-------------|
| 1905 | 127,169 | 55,581 |
| 1904 | 100,408 | 44,633 |
| 1903 | 82,754 | 38,688 |
| 1902 | 59,745 | 24,972 |
| 1901 | 40,234 | 19,968 |

I am not aware that any perfectly up-to-date official list of the pulp and paper-making enterprises of the Dominion of Canada exists, but I give herewith a transcription of what I believe is the latest list of the kind issued under Canadian Government authority. It cannot, however, be regarded as complete, but it is useful as far as it goes. Some of the concerns mentioned are, I believe, not producing at present; one or two may now be non-existent; but, on the other hand, new enterprises which are not included more than compensate for the deficiency. The list, it will be noticed, deals essentially with pulp production, although many of the concerns included are extensive manufacturers of paper as well. The list I quote gives, it will be seen, the location of each property, as also the nature of the production for which it is responsible. In certain cases the proprietary of the mills has changed since the list was compiled:—

ONTARIO.—Toronto Paper Mill, Cornwall (sulphite fibre), Frankfort Paper Mill, Frankfort (dry pulp); Gore Paper Mill, Dundas (chemical fibre); Georgetown Paper Mill, Georgetown (bass-wood pulp); Riordan Mills, Hawkesbury (sulphite fibre); Riordan Mills, Merriton (sulphite fibre and pulp); Sault Ste. Marie Mill, Sault Ste. Marie (wood pulp, dry); Glen Miller Mill, Glen Miller (pulp); Thorold Mill, Thorold (mechanical pulp, dry); Sturgeon Falls Mills, Sturgeon Falls (dry pulp).

QUEBEC.—Chicoutimi Pulp Mill, Quebec (wet pulp); Royal Paper Mill, Montreal (soda pulp); Canada Paper Company, Montreal (dry pulp, chemical fibre); Laurentide Pulp Company, Grand-Mere (pulp fibre); E. B. Eddy Company, Hull (sulphite fibre, pulp); Chatham Pulp Mill, Lachute (pulp); Lachute Pulp Mill, Lachute (dry pulp); Lake Megantic Pulp Mill, Lake Megantic (ground pulp); Dominion Paper Mill, Montreal (chemical fibre, pulp); Old Lake Road Mill, Old Lake Road (wood pulp); Jos. Ford, Portneuf (pulp); Jacques Cartier Pulp Company, Montreal (ground pulp); J. C. Wilson & Co., Montreal (pulp); St. Raymond Company, Montreal (dry pulp); Société Industrielle du Comte de Maskinongé, St. Ursule (ground pulp).

BRITISH COLUMBIA.—British Columbia Mills, Alberni (pulp).

NEW BRUNSWICK.—Dominion Pulp Company, Chatham (pulp); Maritime Sulphite Fibre Company, Chatham (sulphite fibre); St. John Sulphite Fibre Company, St. John (sulphite fibre); Cushing Sulphite Fibre Company, St. John (sulphite fibre).

NOVA SCOTIA.—St. Croix Paper Company, Ellershouse (pulp); Nova Scotia Wood Pulp Company, Mill Village (mechanical fibre); Acadia Pulp Company, Halifax (dry pulp); Sheet Harbour Pulp Mills, Sheet Harbour (sulphite fibre); Sissiboo Falls Paper Company, Weymouth (wood pulp).

The majority of the above-mentioned concerns are run by Canadian capital, although there may be isolated instances of individual British holdings in purely Dominion enterprises. As a matter of fact, there are as yet comparatively few pulp and paper enterprises in Canada which are capitalised on this side. Amongst the principal of those in which any considerable proportion of British capital is or was invested may be mentioned the Chicoutimi Pulp Company; the Imperial Paper Mills of Canada, Limited, and the Laurentide Paper Company, Limited (not included in the above official list); the Dominion Pulp Company, Limited; the Cushing Sulphite Fibre Company, Limited, of St. John, New Brunswick; the Maritime Sulphite Fibre Company, Limited, of Chatham, New Brunswick; and the Canadian Pacific Sulphite Pulp Company, Limited, of Vancouver.

Many leading men in the British paper trade are extensively interested in these concerns, amongst them such well-known men as Captain Partington, chairman of Messrs. Olive and Partington, Limited, of Glossop, and chairman and managing director of the Kellner-Partington Paper Pulp Company, Limited, and of the Ramsbottom Paper Company, Limited; and Mr. Albert E. Reed, who is chairman and governing director of Messrs. Albert E. Reed and Company, Limited, owning extensive paper mills at Maidstone, High Wycombe, Merton (Surrey), and South Darenth (Kent).

Nevertheless it is a matter for great regret that in the cases of several of these enterprises—and the above list does not pretend to be exhaustive—success has not as yet been attained. To be frank, the impression created has not been favourable, but it seems generally agreed that the intrinsic value of the properties is good, although the methods adopted in their exploitation have not been such as could escape criticism. Striking cases in point are the difficulties in which the Northern Sulphite Mills of Canada, Limited, and the Imperial Paper Mills of Canada, Limited, have found themselves, and recent information from the other side was to the effect that the latter company was not yet earning a penny towards the payment of its Debenture interest.

In November last as much as £250,000 was, I believe, required to pay off outstanding obligations to banks, &c., and to cover this it was proposed to create a first mortgage charge upon the property of the company and upon that of the Northern Sulphite Mills to the tune of £300,000. How far this has been carried into effect I am not in a position at the moment to say; but the

impression created has not been a favourable one, and the general result has not been conducive to the promotion of enthusiasm amongst British investors who would otherwise be disposed to put their money into Canadian pulp and paper undertakings. No doubt this same condition largely accounted for Messrs. Edward Lloyd, Limited, abandoning their intended enterprise at Sturgeon Falls.

As the result of many troubles and vicissitudes, the property of the Cushing Sulphite Company, already mentioned, passed, I believe, into the hands of Captain Partington, and Scottish papermakers were severely bitten in the case of the St. John Sulphite Company, whose property was sold by auction. No better luck followed the operations of the Maritime Sulphite Company, whose business was ultimately sold to American capitalists, and the delay of the Canadian Pacific Sulphite Company in proceeding with their works was not inspiring, while the entire collapse of the scheme of the Western Canadian Pulp and Paper Company, Limited, which, it may be remembered, was registered with a capital of £450,000, emphasised the unfortunate impression which had been created.

I am afraid that in every case what has occurred must be put down to a combination of bad finance and incapable, or at least inefficient, administration. The Imperial Paper Mills Company certainly went out of their depth, and made themselves responsible for obligations which, as events have proved, they were quite unable to meet. Then, again, it may be taken for granted that it is fatal to the interests of a pulp-making concern to attempt starting practical operations under existing conditions in Canada without the possession of pulp lands of their own. It is from the want of these that certain recent enterprises have gone to the wall, and more still will go in the same direction if a similarly futile policy is followed. Moreover, it is equally absurd for directors in this country to hope to manage from their board-room in the City a big pulp and paper-making industry in Canada without their having first-class, practical men on the spot, and, if they have such men, without giving them a reasonable amount of freedom in the conduct of practical operations.

Notwithstanding the cold douches which recent events, such as I have in the most cursory way indicated, have administered to British investors with regard to Canadian pulp and paper concerns, there is not the slightest justification for pessimism as regards either the near or the distant future of the industry in Canada as a dividend-earner for British capital. Given ordinary discrimination on the part of the investor, Canadian pulp and paper securities afford prospectively as safe a channel for investment as any other industrial security in Canada. The Canadians

themselves have unlimited confidence in the future of their pulp and paper industries, and, while British directors have been blundering on this side and their representatives on the other side, shrewd American capitalists have stepped in and snatched many of the best plums from the basket.

Meanwhile, during last summer and the period when I was making my journey through Canada, numerous developments of the most important character were inaugurated or in progress in connection with the Canadian pulp and paper industries. This activity was characteristic of no particular province, but seemed to be applicable to the whole Dominion, from the Atlantic seaboard to the Pacific Coast ; and from Vancouver Island in the West to Nova Scotia in the East, and even beyond the domain of Canadian influence, to Newfoundland, new enterprises were being launched for the exploitation of timber limits and the manufacture of wood-pulp and paper. In Quebec they were talking of a new paper mill at St. Raymond, whilst a new sulphite mill was to be built at Jonquières, Quebec. The Merriton Paper Mills Company, Limited, was being organised with a capital of 300,000 dollars, and Mr. John R. Booth was busy on plans for papermaking on an extensive scale at Ottawa, he having secured the valuable Montreal River pulp-wood limits from the Province.

It was expected also that the Ontario Government would before long announce the disposal of other limits, the sum total of the exploitation of which would go far to increase the production of pulp and paper in the Province. Moreover, an American concern, the Michigan Pulp Wood Company, incorporated under the laws of that State, had secured powers from the Government of Ontario to operate in pulp-wood and manufacture pulp in that province. The concern has, I believe, a capital of 40,000 dollars.

Then, again, I heard that an American firm, of Bangor, in the State of Maine, were expected to secure a concession at Sand Island Falls. If this anticipation were realised the intention was to erect pulp mills at Fort Francis. At the same point pulp and paper mills were to be erected by the Backus-Brooks Company, and the same concern, I understand, have purchased the pulp-wood limits of the Keewatin Lumber Company. Further afield, at Chatham, New Brunswick, the Miramichi Pulp and Paper Company, Limited, have extensively increased their plant, and these augmented manufacturing resources in the Maritime Provinces, *plus* the activities in Newfoundland of the Harmsworths are expected to make very important increases in the total production of British North America.

Westwards I found similar indications of healthy activity prevailing, important developments being in progress in various directions, and new undertakings being in course of realisation

or projection. In Vancouver Island, at Quatsimo Sound, the Quatsimo Power and Pulp Company, who own 70,000 acres of timber land, are to erect a pulp mill with a capacity at the start of from sixty to seventy tons per day, the capital being provided chiefly by East Canadian capitalists, who expect to find a market for their entire product in Asia. Their intention, I hear, was later on to take up the manufacture of paper as well. Then, at Bellacoola, in British Columbia, capitalists who have interested themselves to the extent of one and a-half million dollars will put up a pulp and paper mill, and work the pulp limits acquired in the Bellacoola Valley. In this concern, I believe, Eastern and Western capitalists have joined hands with Norwegian colonists in establishing the new enterprise.

I also heard that the capital of the Canadian Pacific Sulphite Pulp Company, Limited, had been fully underwritten by the Canadian Finance Syndicate, of London, the capital mentioned being £107,000. This company, as some of my readers will remember, was registered in May last year to acquire the whole of the issued capital of the Oriental Power and Pulp Company, Limited, of Vancouver, owning a lease of some 84,000 acres of pulp-wood limits in Princess Royal Island and the adjacent mainland, together with a water power and about 500 acres of freehold land, the intention being to erect pulp, paper and saw mills. I hear that at the lowest estimate the water power would provide at least 12,000 horse-power all the year round.

Then the North American Land and Lumber Company had acquired powers to erect pulp and paper mills, which scheme, it is anticipated, will be realised this year; and progress is being made at Erwood, in the Dauphin district of Manitoba, by a Minneapolis capitalist, who is largely interested in mining and timber operations both in the United States and Canada. These movements by no means exhaust the list of advances which are being made at the present moment, for since I returned home I have heard of a good many projects of a similar kind. It is important to note, for example, that the great Booth and Eddy mills at Ottawa and Hull, Quebec, have resumed manufacturing operations, and the new Booth mill made its first paper a few months since.

By this time probably several of the developments I have indicated will have made further advances, which I am not in a position to report or verify. As the result, however, of the latest information regarding pulp and papermaking developments in Canada which has come into my possession, taken in conjunction with my own observations and investigations whilst in the Dominion, I arrive at the conclusion that it is beyond all question a truism that the pulp and paper industries of Canada

have a great future. The misfortunes of the recent past are characteristic of early developments in nearly every industry which attracts the attention of outside investors, and somehow or other the lessons dictated by misfortune and bitter experience seem easily forgotten. The pulp-wood, wood-pulp and paper-making industries of Canada unquestionably possess magnificent prospects, and in the not distant future will present numerous desirable openings for the remunerative employment of British capital.

This will be still further accentuated when Canada cultivates the United Kingdom as a market for her wood-pulp more assiduously than has been the case in the recent past. At present the total amount of "news" paper annually exported from Canada aggregates in value about 1,750,000 dollars, of which only a comparatively small proportion finds its way to the United Kingdom, while the Dominion's own consumption of "news" is about 30,000 tons in the course of a year. The great bulk of our supplies of pulp for the paper mill comes from Sweden and Norway, while Holland, Germany, Russia and Finland and other European countries contribute to the general total.

There is every desire on the part of the British papermaker to consume Canadian pulp. Given the right price and the right quality, he would prefer to deal with his Canadian kinsmen than with foreigners, and it is for the Canadians to respond to this desire in a manner which will be acceptable. When this is done our imports of Canadian pulp will increase, and the dividend-earning power of Canadian pulp undertakings correspondingly advance, rendering them a channel for investment of which the British capitalist will not be slow to avail himself.

CONCLUSIONS :

That the Pulp and Papermaking interests of Canada have a bright and prosperous industrial future in store for them.

That recent failures of British-capitalised Pulp and Paper undertakings in Canada fail to justify pessimistic anticipations.

That the causes of such failures are not far to seek, and themselves indicate the remedy.

That great developments are in progress, and greater still will be the advances made when Canada more fully cultivates Great Britain as a market for the product of her Pulp Mills.

That the cloud which seemed to hang over the Pulp and Paper making interests of Canada was more apparent than real, and was due to errors of administration, management and finance, and not to any intrinsic condition of the industries themselves, which will gradually become re-established in the confidence of investors on both sides of the Atlantic.

SECTION—VI.

CANADIAN FISHERIES.

CHAPTER I.

THE FISHERIES OF EASTERN CANADA.

THE IMMENSITY OF THE CANADIAN FISHERY RESOURCES.—THE FISHERIES OF NOVA SCOTIA.—THE DECLINE IN THE CATCHES APPARENTLY ONLY TEMPORARY.—COD AND LOBSTER THE BACKBONE OF THE NOVA SCOTIA FISHERY INDUSTRY.—THE FISHERIES OF NEW BRUNSWICK.—THE FISHERIES OF PRINCE EDWARD ISLAND, ONTARIO AND QUEBEC.

CANADA has been so generously endowed with natural resources, and each of them seems to be so prolific, that one hesitates to appraise, at even its proper valuation, any one of them for fear of being accused of gross exaggeration. In the matter of fisheries, for example, it would be difficult to indicate any other part of the world which is so lavishly provided as the Dominion of Canada. This will be obvious to the intelligent reader who cares to glance at a modern map of Canada. There he will see half a huge continent almost surrounded by water. If we take the great inland lakes, which constitute nearly half of the International Boundary separating Canada from the United States, into consideration, the Dominion almost resolves itself into a peninsula. But be that so or not, there is possibly no country in the world which can compete with Canada in its amount of sea coast-line, aggregating as it does to something like 13,000 miles, and as where there is coast-line there must be sea, and where there is sea there are presumably fish, one may begin to logically conclude that the fishery resources of the Dominion must be prodigious.

If one goes further than this and looks carefully into the actual condition of affairs, one will find that the assumption is not ill-founded. To make a general survey first, before going into detail, I find as the results of statistical record that the North Atlantic seaboard of the Colony is especially prolific in the fishes of commerce. The physical characteristics of the entire maritime provinces—a great river, the St. Lawrence, pouring the colossal volume of its waters into the Atlantic, amidst conditions such as the coast-line of Quebec affords; the wonderfully indented

shore-lines of New Brunswick, Nova Scotia and Cape Breton Island, with Prince Edward Island snugly protected by the latter from the full blast of the Atlantic storms, and the vast expanse of Newfoundland acting as a wave-buffer for them all—present just such conditions as conduce to a veritable piscatorial paradise, and the means whereby a great marine industry may be built up. Under these circumstances it is not surprising that Nova Scotia should take first place in the records of Canadian fisheries. New Brunswick, too, reaps a liberal reward from the accident of her geographical situation and the readiness of her fisher sons to take advantage of it.

Westwards, the Great Lakes present their offering of numerous fish of commercial significance ; and northwards, the great inland sea of Hudson's Bay has an inexhaustible tribute ever ready to be paid in generous measure to well-directed enterprise. The lesser lakes—lesser, that is, as measured by a Canadian standard, and not according to our British circumscribed notions as to what constitutes bigness when applied to sheets of water—which speckle the Dominion from Atlantic seaboard to Pacific coast teem with fish, as do the rivers which are tributary to them. And then, away to the extreme west, is British Columbia, with its coast waters swarming with a ready harvest of fish and its rivers aglow with myriads of silvery salmon and trout. As a matter of fact, a year ago Canada had 100,000 men engaged in her fishery industries, and some 12,000,000 dollars invested in her fishery equipments. Fish, indeed, may be said to represent one of Canada's greatest industrial endowments, which, although vigorously exploited at present, is as yet only in the infancy of its development. Canada has, moreover, re-established her whale fishery industry, and in 1905 14,000 seals were caught in Canadian waters.

I cannot in such a chapter as this attempt to enter in detail into the position of the fishery industries of all the Provinces of the Dominion, but Nova Scotia, as *par excellence* the premier Province so far as this branch of activity and wealth is concerned, must have the first claim upon my consideration. So far as geographical situation is concerned, Nova Scotia might almost be regarded as having been intended by Nature as a great centre of fishing industry. Such, indeed, the Province has proved herself to be, although just at present the industry is somewhat under a cloud. The pessimists declare that, in respect of its fisheries, Nova Scotia has seen its best days ; the optimists contend that the *débâcle* is purely temporary—illustrative of the vicissitudes to which such an industry is peculiarly liable.

I see that a writer in the *Halifax Morning Chronicle* explains the situation thus :—"The physical causes that are factors in

the decline are not hard to find. Canada, THE country in the world to-day, offers so many varied and attractive opportunities that it can hardly be thought strange that the younger generation of fishermen do not go into the business with the vim characteristic of their forbears. The labour is hard and the returns at times are very meagre, and with industries of all kinds throughout Canada calling for unskilled as well as skilled labour, the sure 1.50 dollar to 2 dollars a day overcome the younger fishermen's inherited desire to fish for a living."

Whatever be the cause of the decline, the smaller catch which was characteristic of the fisheries of Nova Scotia in 1906 would appear not to have been wholly without its compensations, for, to quote the *Halifax Morning Chronicle* once more, "top-notch prices were the order of the day, and the fishermen in some districts did better than in 1905." The total yield of the Nova Scotia fisheries for 1906 is, I see, estimated at 9,000,000 dollars, and if that comes anything near the mark I do not see—from this distance, that is, and without all the details of the situation before me—that there is much reason for complaint, judging by the results of previous years, as officially given by the Canadian Government. That is to say, that for 1904—the figures for 1905 are not yet accessible to me—the value of the Nova Scotia fisheries is put down as 7,287,099 dollars; for 1903, at 7,841,602 dollars; for 1902, at 7,351,753 dollars; for 1901, at 7,989,542 dollars; and for 1900 at 7,262,671 dollars. Thus the 7,000,000-dollar level is well sustained each year; but, if the estimate of 9,000,000 dollars given by the *Halifax Morning Chronicle* be anything near the correct figure for 1906, it is difficult to see where the "decline and fall" come in.

The fish comprised within the scope of the catches negotiated by the fishermen of Nova Scotia embrace the most important deep-sea fish, but the four staple products of the Nova Scotia fisheries are unquestionably cod, lobster, mackerel and herring, in the order in which I have given them. Of the cod, which is also the most important member of the fish fauna of Canada, it has been said that the quantity annually caught in the North American waters amounts to something like 185,000 tons, which represent, it has been calculated, something between 150 and 175 millions of fish. The cod, indeed, is one of the most prolific of fishes, and a single female will deposit sometimes as many as eight million eggs. Of course, were even a moderate proportion of these to attain the dignity of adult fish, and the same were to hold good of other prolific creatures, such as herring, mackerel and the rest, the sea would soon be insufficiently large to contain them. Happily, Providence has arranged matters on a better principle, and so it is that the majority of the eggs never become

fertilised, and still more of them are devoured by other marine creatures, whose principal food in many instances they form, only a comparatively few attaining the adult state.

Recent researches go to show that maturity is not attained until the fourth year, and it is now, I understand, practically agreed that the shore and bank cod, which in Nova Scotia, as elsewhere, have been supposed to be different varieties, if not distinct species, are merely cod of different ages. The immature fish keep as a rule near the shore, while the banks form the resort of the older fish. As regards herring, the Canadian fisheries have been more reliable than those of Great Britain, and this has no doubt contributed materially to their success. Few crops in the harvest of the sea seem less liable to fluctuation, although the Scottish herring fishery holds the position of predominance. On the other hand, the mackerel fishery of the Dominion has hardly attained the position it might have secured owing to the fact that it requires sea-going vessels for its prosecution, and, indeed, formerly, at least, the fishermen of the Dominion, when engaged in the capture of cod and herring, were wont to regard the vast shoals of mackerel which they encountered as a nuisance rather than a possible source of wealth.

Cod, as I have said, comes first as a commercial asset in the fisheries of the Province, and the statistics for 1904—the last year for which I can obtain official figures—show that the return for that year in dry cod amounted to 515,926 cwts., valued at 2,321,667 dollars. Next in importance are to be reckoned preserved lobsters, of which the product for 1904 was 5,357,454 lbs., valued at 1,339,363 dollars. The lobsters marketed “fresh or alive” totalled up to 92,513 cwts., valued at 8,510,268 dollars. In this connection, however, it should be noted that the export trade in lobsters during 1906 showed a reduction of 60,000 dollars, which is a serious matter. I am glad to see that the circumstance is engaging the attention of those locally interested, who wisely emphasise the importance of placing quality and reliability first.

Then mackerel is another standard product of the Nova Scotia fisheries, and it comes out well in the figures. In fresh mackerel the catch amounted to no less than 2,555,680 lbs., valued at 306,682 dollars, and the salted mackerel to 21,599 barrels, valued at 323,985 dollars. Other leading products are herring, fresh, kippered, salted and smoked; haddock, fresh, dried and smoked; pollock, with which we are not familiar in the English market; while other fish in the list include alewives, of which I naturally know nothing; clams; flounders; hake and halibut, both of which stand out well statistically; smelts and squid, which last is a stranger to me. Oysters, salmon, trout and bass do not figure prominently.

Considerations of space prevent me from enlarging upon the fishery resources of the other Provinces to such an extent as their importance entitles them, and the briefest references to their output must suffice. The third place as a fish-producing Province belongs to New Brunswick, the production of which in 1904—the last year for which complete figures are accessible to me—amounted in value to 4,671,084 dollars. The most important product of the New Brunswick fisheries is herring, enormous quantities of which are caught, and a large proportion of which are either kippered, salted, or smoked. The total value of the herring-catch for 1904 was 1,033,539 dollars.

Next in importance come lobsters, large quantities of which are canned. The total catch of lobsters for 1904 amounted in value to 651,755 dollars, of which 513,775 dollars represented the canned product. Cod is also caught in large quantities, most of which is dried; and the New Brunswick rivers are prolific in salmon, the fresh fish resulting from the 1904 operations amounting in value to 254,460 dollars. Two other fish which contribute largely to the New Brunswick total are sardines and smelts. Of the former the production in 1904 was 788,830 dollars, of which 148,890 dollars represent the quantity tinned. The smelt harvest was valued at 346,970 dollars. Haddock, large quantities of which are dried and smoked, hake, halibut, mackerel, oysters, bass, alewives and pollock are amongst the other principal contributors to the fisheries product of the Province.

The small Province of Prince Edward Island always succeeds in giving a good account of itself in connection with the fishery industry. In 1904 its fishery products were valued at 1,077,546 dollars, the largest contributing total to which was that resulting from the lobster fishery. The great bulk of the lobsters caught on the coasts of the island are canned, and the output in 1904 reached a total of 625,275 dollars. The oyster fisheries yielded 90,030 dollars, and salted herrings 628,427 dollars. Dried cod added 72,500 dollars to the general total, to which clams, haddock, hake, mackerel and smelts also contributed.

The fisheries of Ontario produced in 1904 fish to the value of 1,793,229 dollars. The product principally contributing to this total was trout, which are caught in large quantities in most of the rivers of the Province. The value of the 1904 catch was 663,733 dollars. Pickerel, one of the smaller species of pike, produced 263,254 dollars, and herring, fresh and salted, 247,924 dollars. Other fish which are included in the Ontario list are white fish, pike, perch, eels and sturgeon, from which last caviare was produced to the value of 22,499 dollars.

The Quebec fisheries produce a greater variety of fish than those of Ontario, and in 1904 the total product was valued at

1,751,397 dollars. To this total dried cod was the principal contributor, the value being placed at 764,928 dollars. A considerable trade is also done in canned lobsters, the output of which in the same year amounted in value to 212,159 dollars. The Quebec rivers yield a fair harvest of salmon, the value of the fresh fish amounting to 153,924 dollars. For the rest, bass, eels, haddock, halibut, herring—the salted output of which last for 1904 amounted in value to 148,271 dollars—mackerel, pike, perch, sardines, smelts, sturgeon and trout take prominent places in the fisheries list of Quebec.

It will be seen, then, that as matters stand now the harvest of the sea gathered by the fisheries of Eastern Canada is a prolific one. No one, however, can investigate the condition of the industry on the spot without being convinced that it has by no means reached the zenith of its capacity, and that by the judicious employment of capital and enterprise it is capable of infinite development.

CONCLUSIONS :

That the Fishery Resources of Canada are almost beyond computation.

That abundant scope for development presents itself in connection with the Fisheries of Nova Scotia.

That the present depression in the Nova Scotia Fisheries is more apparent than real.

That the Fisheries of New Brunswick are next in importance to those of Nova Scotia and British Columbia.

That nothing like finality has yet been touched in developing the Fisheries of Eastern Canada, whose extent and value are capable of indefinite expansion by the introduction of further capital and enterprise.

CHAPTER II.

THE FISHERIES OF WESTERN CANADA.

THE FISHERIES OF BRITISH COLUMBIA.—THE SALMON FISHERIES OF THE PROVINCE.—THE FRASER RIVER FISHERIES AND CANNING ESTABLISHMENTS.—THE FISHERIES OF THE NORTH-WESTERN PROVINCES.—CANADIAN FISHERY STATISTICS.—THE FUTURE OUTLOOK.

NEXT in importance to the fisheries of Nova Scotia are those of British Columbia, and it is open to question whether in any other quarter of the world are such quantities and so many varieties of valuable edible fish to be found, with the added advantage that they are for the most part available in waters where the dangers of navigation are practically negligible. For many years the British Columbia fisheries suffered from the want of a sufficiently extensive or encouraging market; but this disability has been gradually disappearing, more particularly, perhaps, because the Canadian Pacific Railway has offered a convenient mode of transporting the products of these fisheries to eastern markets, where they are much appreciated. Moreover, the fishermen of Nova Scotia and Newfoundland, who are amongst the shrewdest men of their stamp to be found all the world over, have realised the superiority of the British Columbia waters for fishery industry, and have migrated thither and established themselves there in considerable numbers. Possibly the time is not far distant when the cod banks of the Pacific Coast will achieve as high a reputation as that hitherto possessed by those of the Atlantic.

But by far the most extensive branch of the fishery industry of British Columbia is that connected with the catching, canning and curing of salmon. The salmon harvest is prolific. Several of the best varieties swarm into the inlets and up the streams of the Province, ascending as far inland as it is practicable for them to go, and depositing their spawn in the shallow fresh waters of the interior. It is known that salmon entering the Fraser River have ascended the main stream and branches to their very sources, some of them reaching a point as far inland as nearly eight hundred miles from the sea.

It was not my luck to see any of the salmon "leaps" in British Columbia, but I have seen these wonderful acrobatic feats in the salmon rivers of this country, and the habits of the salmon, after all, are much the same all the world over. With powerful leaps they clear rapids, falls and whatever other obstructions they encounter, irrespective of bruises and knocks against the rocks. In fact, the process is suicidal in very many cases, and sometimes, I am told, the Fraser River's banks are lined with their carcasses, which send heavenwards an odour which is the reverse of grateful to the olfactory nerves.

The survivors of the season's spawning—only a minute percentage of the billions of eggs that are deposited up-stream—descend the rivers in due course to the sea, whence, in accordance with the traditions of the salmon, they return at the proper season to their birthplaces, and they in turn exercise their procreative powers, to the replenishment of the salmon resources of British Columbia. It is while the latter are making their annual returns from the sea by stream that they are caught—usually near the entrance to the streams, though often many miles inland.

There is, after all, not so very much, bar the canning process, that is new about this salmon industry of British Columbia. Years and years ago the Hudson's Bay Company caught the silvery creatures and salted them for their own use. The Indians of the Pacific coast also gathered along the streams at the proper season of the year and got the fish in thousands, drying them in the sun for winter use. But *autre temps, autres choses*.

The salmon of British Columbia are of seven species—the spring salmon, coho, steelhead, sockeye, tyhee, humpback and dog. Most of these are of excellent edible quality, although connoisseurs of salmon frequently prefer the flavour of the fish caught in the Eastern Canadian rivers. The fishing season of the Fraser River, which is the principal centre of the salmon fishing and canning industry of the Province, commences in April and continues until winter. Each variety of salmon has its own time for entering the river and seeking its own spawning-ground. For one species the season begins with April and ends with June, and during this period fish are frequently caught weighing, I am assured, as many as seventy pounds, though the average weight is from ten to twenty-five pounds. From June till August a smaller fish, usually averaging about six pounds in weight, enters the river; and in August an excellent seven-pound salmon seeks its spawning ground. The humpback, weighing anything between six and fifteen pounds, is caught from August until winter every second year. Then another fish, ranging from twelve to forty-five pounds in weight, arrives in September and departs in winter.

For fifteen miles from its mouth the Fraser River is specked with boats of the salmon fleet during the fishing season, and a beautiful sight it is to witness the hundreds of boats, usually manned by Indian fishers, cruising about in search of the silvery salmon. Large quantities are despatched to the eastern markets in refrigerator-cars, and arrive in excellent condition in Quebec and Ontario and in the eastern markets of the United States, while considerable quantities also find their way to Europe. The fish fresh caught are transferred from the boats into cold chambers, and in a more or less ice-like condition are conveyed to their destinations. Huge quantities are also salted and packed in barrels, while a large trade is done, especially for the Asiatic markets, in kippered salmon. The humpbacks—ferocious-looking creatures—hardly count seriously in the salmon trade, and it is the dog variety which mostly meets the wants of the Asiatic palate.

But the great bulk of the annual catch finds its way to the canneries, of which there are some fifty on the banks of the Fraser River, although the floating cannery is not unknown, canning the fish "on the spot," so to speak, and converting the offal right away into oil. A representative cannery on shore is a remarkable sight, although, perhaps, it might shock the sensibilities of the Britisher, who has a delicate palate for the lordly salmon, to see the beautiful fish slashed and gutted with a callously-scientific indifference which would do credit to the blood-stained packeries of Chicago.

Sentiment and the salmon trade, I suppose, do not readily assimilate. Anyhow, the work is got through with astonishing rapidity, and it is marvellous how quickly the thousands of salmon are dressed, chopped, canned, and made ready for packing and distribution. Altogether in British Columbia there are, I believe, about eighty canneries, and these in 1904 were responsible for canning 22,362,912 lbs. of salmon, representing a value of 2,236,291 dollars. In addition, the Fraser River and the other sources of salmon production yielded in the same year 15,119,818 lbs. of dry salted salmon, valued at 755,991 dollars, 432,000 lbs. of smoked salmon—that is, kippered and otherwise—valued at 43,200 dollars; and 6,250 lbs. of pickled salmon, valued at 62,500 dollars; while the production of fresh salmon was 2,548,000 lbs., valued at 254,800 dollars.

Next in importance to the salmon in the fisheries of British Columbia is the halibut, chiefly found off the west coast of the Queen Charlotte Islands, the total catch of which for 1904 was valued at 664,050 dollars. Herring, which swarm in the bays and inlets in the spring, are netted in great numbers, and that portion of the 1904 catch registered as fresh alone, irrespective of

those smoked or otherwise cured, was valued at 233,665 dollars. Sturgeon are also caught in large quantities, as are smelts, trout, and a peculiar little fish known as the oolachan, which enters the Fraser River in millions in May, and, besides being most palatable, is capable, when dried, of burning like a candle. Round about the islands, holothura, a small mollusk known as the "sea-cucumber," flourishes, whence is derived the *bêche de la mer* dear to the Chinese palate, and prized also by some cultured *gourmets* elsewhere. Oysters there are, too, and clams, and many more varieties of marine creatures, which all go to swell the long list of products yielded by the fisheries of British Columbia.

The fisheries of the North-Western Provinces are, of course, confined chiefly to the lakes and rivers, and the product for the North-West during 1904 amounted in value to 1,716,977 dollars. To this total white fish of various kinds contributed 701,267 dollars, and pickerel 346,950 dollars. Trout makes a surprisingly poor return, the value being placed at only 3,300 dollars, whereas pike registers 171,565 dollars and sturgeon 119,280 dollars, while the caviare produced from the last-mentioned fish realised 49,000 dollars. Nevertheless, the rivers and lakes of the North-West abound in fish, which not only contribute in some cases a valuable addition to the local food supplies, but render many of the streams and lakes a veritable paradise for the angler.

It will be useful if, before concluding, I supplement what I have written with some statistical data relative to the fisheries of Canada as a whole. First of all, the following official table gives the value of the fisheries during the years enumerated:—

CANADIAN FISHERIES: VALUE IN DOLLARS.

| Provinces. | 1901. | 1902. | 1903. | 1904. |
|--------------------------------|------------|------------|------------|------------|
| Nova Scotia | 7,989,542 | 7,351,753 | 7,341,602 | 7,287,099 |
| New Brunswick .. | 4,193,264 | 3,912,514 | 4,186,800 | 4,671,084 |
| Prince Edward Island | 1,050,623 | 887,024 | 1,099,510 | 1,078,546 |
| Quebec | 2,174,459 | 2,059,175 | 2,211,792 | 1,751,397 |
| Ontario | 1,428,078 | 1,265,706 | 1,535,144 | 1,793,229 |
| British Columbia .. | 7,942,771 | 5,284,824 | 4,748,365 | 5,219,107 |
| Manitoba and Territories | 958,410 | 1,198,437 | 1,478,665 | 1,716,977 |
| Total for Canada .. | 25,737,147 | 21,959,433 | 23,101,878 | 23,516,439 |

The export trade is, of course, one of the principal mainstays of the Canadian fisheries, the total shipments of fish and fish

products in 1905 amounting in value to 11,114,318 dollars. The principal details for the years 1903, 1904 and 1905 are as follows:—

| Description. | 1903. | 1904. | 1905. |
|--|------------|------------|------------|
| | Dols. | Dols. | Dols. |
| Total Fishery Exports | 11,800,184 | 10,759,029 | 11,114,818 |
| Codfish, including haddock, ling and pollock, salted, pickled, &c. | 3,389,717 | 2,793,722 | 2,954,956 |
| Halibut, fresh and pickled .. | 32,885 | 77,131 | 75,168 |
| Herring, fresh, frozen, pickled, canned and smoked | 445,599 | 517,743 | 571,811 |
| Lobsters, fresh and canned .. | 2,989,852 | 2,904,360 | 3,130,934 |
| Mackerel, fresh, canned and pickled | 258,785 | 438,913 | 317,241 |
| Salmon, fresh, smoked, pickled and canned | 2,984,675 | 2,031,801 | 2,111,225 |

So far as the imports of the United Kingdom in canned salmon and lobster are concerned, the Board of Trade returns show that we took from Canada in 1906 salmon to the value of £888,321—more than double what we imported from the Dominion in 1905, “Jungle” excitements notwithstanding. From the United States last year we received canned salmon to the value of £507,466, and from all other countries £3,560 worth—facts which indicate how far this market appreciates the Canadian product, nearly all of which, by the way, came from the Pacific ports. Then, in the matter of canned lobsters, we imported the Canadian product to the value of £182,381, while, for the rest, we did business with Newfoundland to the extent of £62,723, and with all other countries to £49,322. All of this goes to show how generously this country is disposed to deal with Canadian produce when quality, price, and other conditions permit of favourable consideration.

In like manner, the British investor is well disposed towards Canadian industrial enterprise, whether marine, agricultural, mining or manufacturing, when schemes submitted for British co-operation are substantially based, give reasonable prospects of success, and are devoid of any “wild-cat” element. That several branches of fishery enterprise in Nova Scotia, New Brunswick, British Columbia and elsewhere present abundant scope for further development is beyond question. Already a good deal of British capital is engaged in them, and there is room for the profitable occupation of much more of it when suitable opportunity presents itself for taking advantage of the market. It is certainly obvious to anyone who has had the opportunity of

investigating at least some of the Canadian fishery undertakings and discussing some phases of the fishery industry on the spot, that in her marine resources the "Land of the Maple" has one of her most inexhaustible and most prolific commercial assets.

CONCLUSIONS :—

That the coast and inland waters of British Columbia can supply more varieties of edible Fish than probably any others in the world.

That the Salmon Fishing and Canning Industry of British Columbia is capable of further exploitation, and might readily be made attractive to British capital, which is already largely invested in its canning establishments.

That the Fisheries of the Dominion as a whole offer ample opportunity for further Canadian enterprise, which would be readily supported by British capital if substantially-based projects were submitted for British co-operation.

SECTION VII.

CANADIANS AS ENGINEERS.

CHAPTER I.

THE IRON AND STEEL INDUSTRIES OF CANADA.

ENGINEERING AND METALLURGICAL PROGRESS IN CANADA.—

THE OCCURRENCE AND UTILISATION OF IRON THROUGHOUT THE DOMINION.—THE IRON TRADE OF NOVA SCOTIA: THE RECORD YEAR.—THE DOMINION IRON AND STEEL COMPANY.—THE NOVA SCOTIA COAL AND STEEL COMPANY.—IRON AND STEEL MANUFACTURE IN QUEBEC AND ONTARIO.—THE IRON RESOURCES OF THE OTHER PROVINCES.—THE PROSPECTS FOR IRON AND STEEL IN CANADA.

THERE is an erroneous impression which many investors and business people on this side of the Atlantic hug stubbornly to their bosoms. It is assumed that because in a manufacturing sense Canada is a young country, and because the area of her boundless productive possibilities has only as yet been tapped, her enterprises and even her most important industrial establishments are not only of mushroom-like and rudimentary growth, but present as yet merely the framework or skeleton of future greatness, which has still to be filled in and rounded off, and made substantial and robust as time expires. But this assumption is to a large extent mischievous and misleading. Within certain limits, of course, Canadian industrial undertakings are as yet in the making, but—and let this be fully emphasised—only is this the case to a certain extent. In the case of very many enterprises which could be readily named—especially those of an engineering character, and some of which I had the privilege of inspecting during my tour in Canada—their undertakings in extent, organisation, arrangement, equipment and productive resources would excite the surprise and admiration of any intelligent and impartial visitor, and provide suggestive material from which the smug, easy-going, ultra-conservative and super-cautious investor from the eastern side of the Atlantic might derive valuable object-lessons.

Although, as I have said, Canada is a young country in a manufacturing sense, she does things quickly. Young Canada thinks, decides, plans and acts promptly; she lets no grass grow under her feet; and consequently enterprises materialise

rapidly. Where, less than half-a-dozen years before, there was so much waste land or virgin soil there arises with startling rapidity the nucleus of some large industrial establishment, which, in nine cases out of ten, moves energetically forward in the path of prosperity. There are exceptions to every rule, and there is to this rule also—if by such a term I may describe the view to which I have given expression ; but whether one takes mines, sawmills, wood-working factories, wood-pulp mills, paper mills, flour mills, iron and steel works, engineering establishments, or many another kind of industrial undertaking besides, one will find that her youth, which is at once the pride and opportunity of Canada, is alike vigorous and robust.

In no direction is this better exemplified than in the case of the Canadian engineering and allied industries, which are advancing on the crest of a wave of surprising prosperity. Not so many years ago Canada was entirely dependent for the supply of her requirements in iron and steel, the manufactures thereof, and machinery and implements of all sorts, upon Europe and the United States. Year by year, however, Canada has been increasing her own productive capabilities in these particulars, until now she finds herself in certain respects practically independent of extraneous assistance. In short, the Canadians have shown themselves to possess in a highly-developed measure that sort of grit and adaptability out of which successful engineers are made, and the progress that they are making in iron and steel manufacture and in the various branches of civil, structural, mechanical and electrical engineering is of the most noteworthy character. Of this fact I shall in chapters which follow be able to submit some convincing evidences. For the present, however, I shall deal only with the progress of the iron and steel industries, for it is on the development of these from her own self-contained resources that the advancement of engineering activity in the Dominion mainly depends.

In one of the chapters in the "Minerals and Mining in Canada" section of this work I deal at some length with the distribution of iron deposits throughout the various provinces of the Dominion, confining myself therein more particularly to the mineralogical side of the question. I now propose to consider the iron and steel industry of the Dominion in its metallurgical and engineering aspects. It is one which is developing so rapidly, presents such vast industrial possibilities, and promises to be so all-important a factor in the promotion of the permanent prosperity of the Colony as a whole that it fully demands especial review.

* * * * *

Nature has endowed Canada most generously in the possession of that most valuable of economic minerals, iron, which is found

in important quantities of generally excellent metallurgical quality in every province in the Dominion. No specific district seems to be without deposits of iron ores of one kind or another. Here, then, one finds the basis for the development of a great native industry. More particularly is this the case when in the neighbourhood of iron deposits are found valuable coalfields, yielding coal eminently suitable for industrial fuel purposes, and in most cases capable of producing an excellent coke, which, of course, is an essential factor where iron smelting and steel manufacturing operations are concerned.

So far smelting operations have been chiefly confined to the provinces of Nova Scotia, Ontario and Quebec, although indications are not wanting that elsewhere time, with the introduction of fresh capital and enterprise, alone is wanted to enable iron and steel manufacturing operations to be established on varying scales of importance. Moreover, engineering operations connected with agricultural implement and railway, structural and electrical engineering industries are now assuming dimensions of importance in several parts of the Dominion, more particularly in Ontario, Quebec and Nova Scotia; and, with the rapidly-increasing activity which now prevails in connection with these interests, the demands of Canada for its own products in iron and steel will of itself assure a large measure of prosperity for its iron and steel trade.

Again, Canada has done more than made a beginning as an exporter, not only of iron ores, but of pig-iron, steel and manufactures thereof, iron and steel castings, stoves, machinery and hardware. The Dominion has at her disposal, when she is in a position to cultivate them more freely than is the case at present, a share in supplying practically the markets of the world. At all events, it is plain that never did a young country have better opportunities for promoting a great industry than is the case with Canada, with her boundless scope and her splendid present prosperity, in relation to her iron and steel interests.

Although the occurrence of iron in Nova Scotia was discovered as long ago as 1604, through the presence of magnetic iron sand on the beach of St. Mary Bay and of veins of ore in the trap rocks of Digby County, it was not until the first decade of the nineteenth century that any attempt was made to utilise the iron-ore deposits of the province. About that time a Catalan forge was erected at Nictoux, and a few tons of bar iron were produced. By the year 1825, however, a company with a capital of £10,000 established smelting works on the Moose River, and although these were only in operation for a brief period, they succeeded in producing excellent charcoal iron. Three years later the General Mining Association made some efforts to smelt the iron ores of Pictou

County, but the furnaces which they erected near the Albion Mines did not give encouraging results.

A good many years elapsed thereafter before any serious attempt was made at smelting operations, but in 1853 the Acadia Iron Works, after having operated a Catalan forge for a few years, erected a furnace, and, between the year just mentioned and 1874, produced in all some 45,000 tons of pig-iron. These works were



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One of the Pioneers of the Coal, Iron and Steel Industries of Nova Scotia.

acquired by the Steel Company of Canada in 1873, and something like two and a-half million dollars were expended in the erection of blast furnaces and rolling mills and in the general extension of the works, as well as in acquiring deposits of iron ore and coal. This company, although it did good work in its time, did not realise the success that was anticipated, and in 1887 the enterprise was reorganised under the name of the Londonderry Iron Company, which ran extensive works, consisting of blast furnaces, rolling mills, coke ovens, a foundry, several iron mines, important coal areas and the requisite railway connections.

The most important development, however, in the iron and steel industry of Nova Scotia, or, indeed, of Canada as a whole,

was marked by the formation of the Dominion Iron and Steel Company, of Sydney, Cape Breton, which was formed with a capital of 28 million dollars. This company has a very extensive plant abutting upon Sydney Harbour, which is the largest plant of its kind in the Dominion, being thoroughly modern and up-to-date in every essential particular. The first of the several blast furnaces which have been erected was put in operation in February, 1901, and it was capable of being operated under such favourable conditions that it was not long before it was claimed that pig-iron could be produced at a cost not exceeding $5\frac{1}{2}$ dollars per ton. All the same, the Dominion Iron and Steel Company did not attain its present industrial position without experiencing various stages of vicissitude, which seemed, only a matter of three or four years ago, to be dooming the enterprise to disaster. Nevertheless, sound administration and capable management combined to steer the undertaking into smoother water, and the results of the company's operations for 1906 represent a marked improvement upon its previous record.

The company's new rolling mill seems, from all I can hear, to have justified its existence, and improvements which have been introduced for stocking and storing ore and other supplies, and the installation of economical methods of handling coal and ore, have immensely increased the facilities available. Moreover, I believe the blooming mill has had its heating capacity materially increased, and a fine new laboratory has been erected and appointed with the most modern equipment. During last year two Bessemer converters were in course of erection as auxiliaries to the open-hearth steel furnaces, but these, I understand, will not be in operation till well on in the present year. I believe that I am correct in stating that the plant at Sydney at the present moment comprises four blast furnaces and ten open-hearth furnaces, with, of course, rail and wire rod mills, the whole giving employment to an average of 2,000 men, which, it will be readily agreed, is a very big thing indeed for Nova Scotia.

During 1906—Nova Scotia's record year in iron and steel production, as in other industrial affairs—the Dominion Company raised from its mines 480,000 tons of iron ore and 286,000 tons of limestone, while their coke ovens produced 334,000 tons of coke, and their blast furnaces 208,650 tons of iron. For the rest the production included 218,350 tons of blooms and slabs, 52,500 tons of billets, 138,000 tons of rails, 47,700 tons of wire rods, 3,500 tons of sulphuric acid, 2,000 tons sulphate of ammonia, 3,650,000 gallons of tar, and 65,000 tons of granulated slag. Moreover, in January last the Dominion Company's mill at Sydney rolled 7,400 tons in 24 hours, which is a world's record, and the company

holds a similar distinction with regard to having turned out during that same month a greater production, with a good margin to spare, than any steel manufacturing concern in the world. The company is, therefore, able to give a good account of itself so far as production is concerned ; and the additions to the works and plant, and the various structural and mechanical improvements introduced, afford the shareholders an enhanced security for the capital they have invested in the undertaking.

The dividend-paying stage has not yet been reached, but economic and other difficulties were fewer during last year than formerly, and the product was greater and more profitable. According to information received from the other side a little time ago regarding the differences between the Dominion Iron and Steel Company and the Dominion Coal Company, there was a fair prospect of a much-desired *entente cordiale* being established between the two concerns. If anything of a permanent character approximating to this is realised, it will assuredly be a matter for congratulation all round.

Another important company engaged in iron and steel production in the province is the Nova Scotia Coal and Steel Company, which was formed with a capital of five million dollars. It has smelting works at Ferrona and steel works at New Glasgow. The company's production during 1906 surpassed any previous record in its history. More men were on its pay-sheets than had ever been the case previously, and the company's books, I hear, are well lined with orders for 1907. Large increases have been shown for last year, alike in the amount of coal raised and shipped, and in the output of steel ingots, bars and sheets, as well as in the products of the forge. The pig-iron result is smaller than for 1905 by a few thousand tons, but this is explained by the fact that the blast furnace was let out of blast for relining in October last, after having been in continuous operation for two years and a quarter. It is understood that the increase in coal production for the year has been over 20 per cent., in limestone over 40 per cent., and from the rolling mills and forges over 30 per cent.

A few figures for 1906 will help the reader to gauge the productive capacity of the company :—Coal mined and shipped, 723,705 tons ; coke manufactured, 81,279 tons ; iron ore mined, 389,800 tons ; pig-iron produced, 49,412 tons ; output of steel ingots from the open-hearths, 51,672 tons ; steel billets rolled at New Glasgow, 52,500 tons ; steel bars and sheets rolled at New Glasgow, 43,123 tons ; limestone and dolomite quarried, 57,000 tons ; freight carried on the company's railway, 1,300,000 tons ; freight carried by its steamers, 680,000 tons ; and money paid in wages, 2,200,000 dollars. These figures, which would have been better still but

for the unfortunate dispute between the two Dominion companies, must be eminently gratifying, not only to Canadians and others who are investors in this undertaking, but to all who look to the development of the iron and steel interests of the Dominion as a source of material prosperity for Canada in the near future.

Coming now to Quebec and Ontario, it falls to be noted that the iron ore resources of the former province were amongst the



Mr. ROBERT E. HARRIS,
A Director of the Nova Scotia Steel and Coal Company.

first emanations of its mineral wealth to be turned to industrial advantage. More than two centuries ago the importance of the ore deposits was recognised by the early French settlers, and so valuable were they regarded that a report was made on them to the French Government in 1681. In 1733 smelting operations were commenced, the ores operated upon being chiefly those of a bog-iron character met with in the neighbourhood of the St. Francis River and those found in the vicinity of the St. Morris River, and the industry thus started has continued, with varying degrees of activity and success, to the present time. The first furnaces installed were, of course, of small capacity, and it was considered they had done well if five or six tons a day marked the output.

Some years ago these were in most cases replaced by larger plants, having a capacity of about 50 tons of pig-iron *per diem*. The general quality of the product up to the present time is of a high character, and adapts itself admirably to the production of car-wheels, for which a large proportion of the output has been employed for a lengthened period. A good deal of the ore latterly smelted has been obtained by means of dredging the bed of Lac à la Tortue. The ores found in Quebec are, like those of Nova Scotia, abundantly varied in character, and extensive deposits of magnetic ores have been found along the Ottawa River and near the town of Hull, where smelting operations were actively carried on thirty odd years ago. As I previously remarked, also, large bodies of magnetic ore have been worked in the Eastern townships. The most recent figures before me present a yearly production of 6,055 tons of pig-iron, of a marketable value of 140,978 dollars.

Much more extensive has been the latter-day production of pig-iron from the smelting furnaces of Ontario. The official figures of the Ontario Bureau of Mines show a production for 1905 of 256,704 tons of pig-iron, of a marketable value of 3,909,527 dollars, although it should be noted that in this case the figures I have quoted represent not only the iron produced from native ores, but also that produced from imported ores, or an admixture of native and imported ores. The production of steel in 1905 was 138,387 tons, valued at 3,321,884 dollars. These figures show immense increases over the totals for 1904.

The ores of iron are widely distributed throughout the province. Valuable deposits of magnetite and hematite have been discovered in the Eastern counties in the districts served by the Kingston and Pembroke, Central Ontario, and the Irondale, Bancroft, and Ottawa Railways. In Eastern Ontario, however, comparatively little has been done in the way of iron mining in recent years, owing to the high duty imposed upon ore exported to the United States, thus militating against its access to its chief market. The erection of smelting furnaces in the province has, however, constituted inducement enough for the reopening of several of the mines that were closed.

Greater activity has been manifested in connection with the iron ore resources of Western Ontario, and the deposits on the Northern shores of Lakes Superior and Huron have been successfully tapped. The Atikoken Range affords a case in point, and the deposits met with there, to which I have made specific references in another chapter dealing with Port Arthur, supply the ore which the furnaces of that growing centre of railway, shipping and industrial activity are now successfully smelting. In this connection I think I am correct in stating that,

after the big concern of the Dominion Company of Nova Scotia, the largest iron and steel undertaking in Canada at the moment is the Algoma Iron and Steel Company, whose headquarters are at Sault Ste. Marie, where there is, I was told, a fine plant, capable of giving an excellent account of itself even under the most strenuous competition. It was one of the numerous regrets that such a trip as mine carried with it that I was unable to include a visit to the Algoma property in my programme. Altogether there was an important measure of increased activity in the iron industry of Ontario during 1906, which offers much satisfaction to those commercially interested.

Historically speaking, Quebec had the advantage of Ontario in the matter of establishing an iron industry, and the first attempts at smelting the local iron ores took place about the year 1800. Success did not accompany early operations in this direction, and between the year just mentioned and so recent a date as 1883 only one enterprise of the many started proved successful. This isolated case was the furnace erected at Normandale, in Norfolk County, which smelted the bog ores surrounding the vicinity, using charcoal as fuel. The pig-iron produced was used as the basis in the manufacture of stoves and articles of domestic and agricultural utility called for by the settlers. Attempts, I believe, were also made to smelt the magnetite ores, but it seems that these operations were not remunerative. The conditions which prevailed in the country at the time, of which the sparse population was one, were not favourable to the establishment of a smelting industry on a permanent scale. More recently, however, with increasing population and consequent advancing industrial activity, modern plants have been erected at various points in the province, and the attempts which have been made in this direction have been considerably facilitated by the duty which was imposed upon iron entering the Dominion—for a good deal of imported ore was used in admixture with the native product—and by the increased encouragement offered both by the Dominion and Provincial Governments.

An excellent example has been shown by the Canadian Northern Railway in erecting large modern smelting plants at Port Arthur, and, from what I was able to gather during my visit to Western Ontario, the encouragement offered by the increasing Canadian demand for locally-smelted ores is such that the iron industry of Ontario is likely to develop rapidly. Indeed, at the time of writing I hear that good business is being done at Hamilton by the Hamilton Iron and Steel Company, which, after the Algoma Company, is probably the largest undertaking of its kind in Ontario.

And now I come to consider briefly the other provinces of Canada with which I have not so far dealt specially in relation to the production of iron and steel. They are not without resources of raw material, which may be exploited to advantage in the near or distant future. New Brunswick, in particular, has numerous important deposits of iron ores, including hematite, and formerly the ores of iron were amongst the most important minerals mined in the province. The production, however, seems not at the moment to be of commercial importance, although the increase of industrial activity throughout the province and the Dominion generally, and the increased call thereby made for iron of native production, may at no distant date call into activity the latent resources of the province in the matter of iron production.

Manitoba is, of course, essentially an agricultural province. Nevertheless, it is not without its deposits of iron ore, rich finds of which have been made on an island in Lake Winnipeg. What the great North-West Territory possesses in iron resources is as yet a matter of speculation, but the areas are so vast, and the geological and mineralogical conditions so varied, that it is almost impossible to imagine so huge an area of the North American continent devoid of more or less rich deposits of iron, which in times yet to come may be exploited to the great material advantage of the Dominion as a whole, and the North-West Territory in particular. But this, as I have said, is a matter of speculation, and it is unnecessary, therefore, to enlarge further upon it here.

In British Columbia, also, iron-ore deposits do not figure on a scale of commercial importance, but I understand there have been isolated discoveries, which would seem to point to possibilities which may have significance at some future date. Clay ironstone occurs in many districts, and if it possesses metalliferous value of any consequence it is not likely to remain unexploited when the province attains a greater degree of industrial importance than that which is the case at present.

Let us now look at what Canada has done, with all her obvious resources, in the matter of iron and steel production, so far as export trade is concerned. The following are the official statistics for 1905 :—

| IRON AND STEEL :— | | | | | | | Value in Dollars. |
|----------------------------------|-------|---------|----|---------|--|--|----------------------|
| Stoves | No. | 986 | .. | 11,637 | | | |
| Castings, N.E.S. | .. | — | .. | 64,970 | | | |
| Pig-iron | Tons | 866 | .. | 22,284 | | | |
| Machinery | Tons | — | .. | 393,170 | | | |
| Sewing machines | No. | 977 | .. | 21,972 | | | |
| Typewriters | No. | 4,100 | .. | 138,941 | | | |
| Scrap iron and steel | Cwts. | 482,179 | .. | 240,105 | | | |
| Hardware | .. | — | .. | 170,262 | | | |
| Steel, and manufactures of | .. | .. | .. | 224,217 | | | |

One word more, and an important *obiter dictum* it is. At the present moment, when the iron and steel industries of Canada may, in a sense, be said to have reached the parting of the ways—when abounding prosperity looms ahead, when the future is great with possibilities—what are the prospects, and what is the situation which governs these prospects? The whole position seems to be compressed within the limits of a nutshell. The resources, the potentialities of Canada as a producer of iron and steel, are not seriously questioned.

The circumstances which have led up to the failure of the Dominion Company, as a great representative metallurgical concern, to produce dividends so far can be understood by all competent business men. I am afraid our friends in the United States, however, understand them best. At all events, recent intelligence received on this side is to the effect that the United States Steel Corporation has taken up all the options it possessed at Sandwich, Ontario—which comprise, amongst other good things, 1,000 acres fronting the St. Clair River—with a view to installing there as early as practicable a steel plant, which, it is alleged under some show of authority, will be twice as large as the largest in Canada, which is that of the Dominion Company.

It has been argued that no plant in Canada can turn out the best class of structural steel suitable for buildings of the skyscraper persuasion, or for large shipbuilding and certain other purposes, and it is undeniable that Canada imports most of the heavier sorts she requires from Great Britain and the United States. This is not a lasting condition; it is incidental to the transition state in which the Canadian industry is at the present moment; and evidences are not wanting to show that, with the encouragement which capital and enterprise from the old country can best command, the independence, comparatively speaking, of Canadian efforts in these particulars is practically assured. But Canada must understand that British capitalists, after all, do not put their money into Canadian undertakings for the fun of the thing merely. In other words, Canada must offer reasonable inducements, sound security and dependable administration. Given these, British capital will be unhesitatingly forthcoming for such reputable Canadian securities as her growing iron and steel industries can present.

CONCLUSIONS :

That the Iron and Steel Industries of Canada represent a great force for the future development of prosperity in the Colony.

That in these particulars Nova Scotia had a record year in 1906.

CONCLUSIONS—*continued*.

That United States enterprise and capital are assiduously cultivating the opportunities that present themselves in Canada in connection with Iron and Steel.

That if Canada desires to stimulate the interest of British investors therein greater inducements must be offered to British capital in these directions than has latterly been the case.

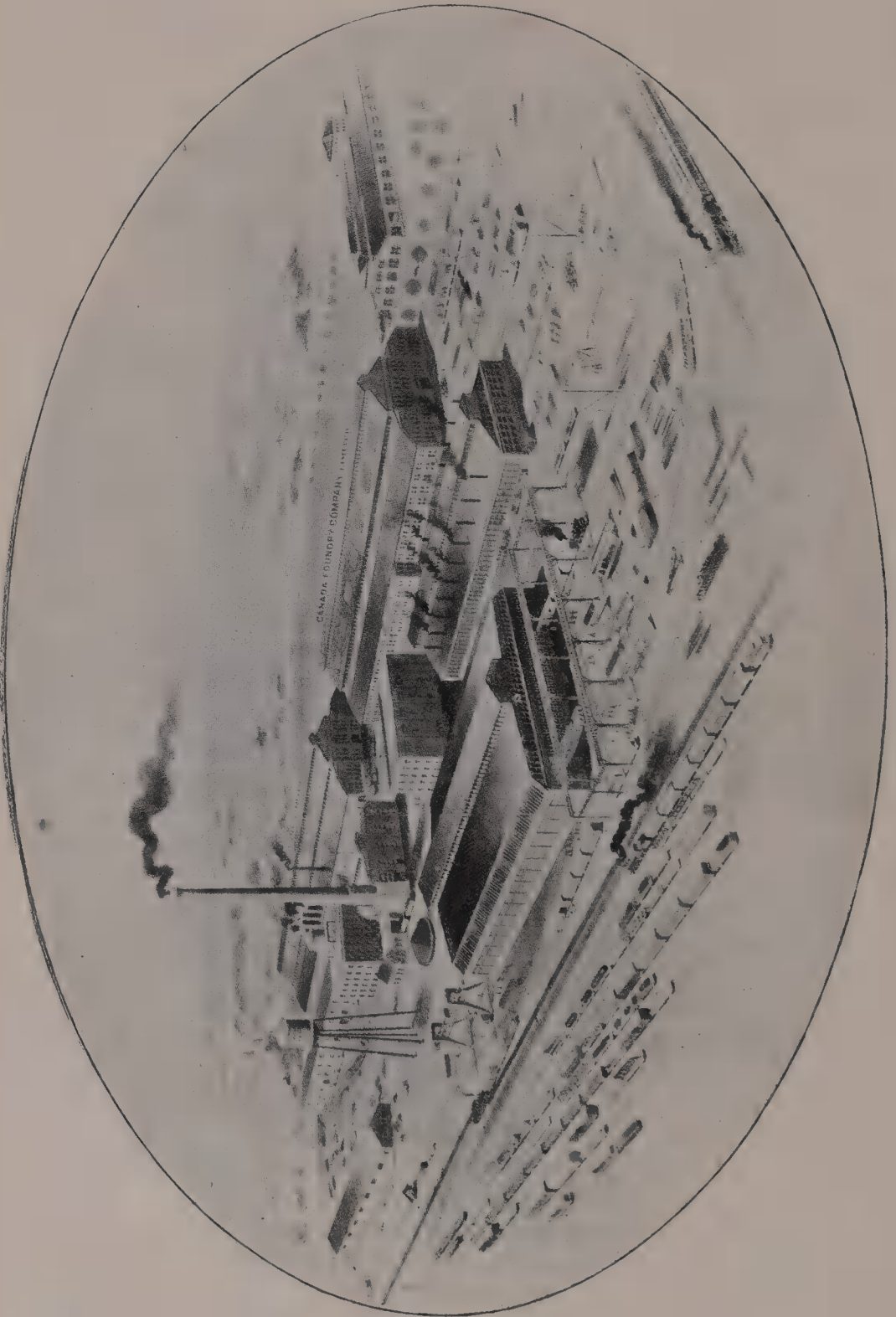
CHAPTER II.

THE GREAT WORKS OF THE CANADA FOUNDRY COMPANY, LIMITED.

CANADIAN RESOURCE IN ENGINEERING.—ONE OF THE MOST UP-TO-DATE ENGINEERING ESTABLISHMENTS ON THE AMERICAN CONTINENT.—AN OFFSHOOT OF THE CANADIAN GENERAL ELECTRIC COMPANY, LIMITED.—A RUN THROUGH THE SHOPS AT THE DAVENPORT WORKS.—SPECIALISATION IN EXCELSIS.—WHAT THE CANADA FOUNDRY COMPANY, LIMITED, CAN DO.

IF there were any one amongst my readers who doubted the technical capacity, faculty for initiative, or executive resource of Canadians when they betake themselves to engineering enterprise, I would commend to them a visit to the gigantic undertaking carried on a few miles out of Toronto by the Canada Foundry Company, Limited. No better exemplification of what Canadian engineers are capable of achieving is available—and none more convincing to the most sceptical could be wanted—than the huge works of this company at Davenport : an establishment which veritably represents the last word in its own department of engineering activity not only as regards Canada, but as to the most advanced of cosmopolitan practice. Taken as an individual concern, the undertaking of this company, whose headquarters are in Toronto, is the most important of its kind in the Dominion of Canada ; but when it is regarded as a segmental portion of a much greater industrial concern—the Canadian General Electric Company, Limited—it may be regarded as typically representative of what I might describe as the aggressively progressive commercial spirit which characterises the business atmosphere of Canada to-day.

I may say that the Canadian General Electric Company, Limited, as at present constituted, and of which the Canada Foundry Company, Limited, is an integral part, has been in existence since 1891. In that year the principal companies in Canada which controlled the manufacture of electrical appliances were amalgamated, the predominating interest in the stock of



THE WORKS OF THE CANADA FOUNDRY COMPANY, LIMITED, AT DAVENPORT, ONTARIO.

the combine being at the outset held by the General Electrical Company of the United States. The Canadian minority holders, however, exercised the option which they possessed to purchase the General Electrical Company's holdings, and since this purchase took place the capital has been wholly Canadian. This purchase carried with it an important agreement with the General Electrical Company of the United States, which conveyed to the Canadian General Electric Company, Limited, the exclusive right in perpetuity to manufacture and sell general electrical apparatus throughout Canada. The company also acquired from time to time the rights and business for Canada of numerous other electric and manufacturing concerns, amongst them those of the Edison Electric Company, the Edison General Electric Company, the Thomson-Houston International Electric Company, the Thomson-Houston Electric Company, the Brush Electric Company, and others, of which, however, I will specially mention the Canada Foundry Company, Limited, as it is with this undertaking that I am more particularly concerned in the present chapter.

The works and factory buildings of the Canadian General Electric Company, Limited, and of its subsidiary companies rank amongst the most modern and completely-equipped establishments of their kinds in Canada, and the premises of the Canada Foundry Company, Limited, are the largest and most up-to-date general engineering works in the Dominion. Their output, in addition to foundry work proper, embraces the most comprehensive range of engineering productions imaginable, including as it does locomotive engines and steam shovels ; steam, hydraulic and other pumping machinery ; air compressors and pneumatic machinery ; rock-crushing plant ; electric cranes ; railway and tramway trucks ; steel bridges and girder work ; steel structures for building purposes ; all kinds of boilers, pipes, hydrants and waterworks' supplies ; machine screws and nuts and other engineering details ; ornamental ironwork, fences, gates and art metal work generally. Indeed, the whole gamut of structural and mechanical engineering work is embraced within the scope of the industrial operations of the Canada Foundry Company.

The works of the company are situated at Davenport, a few miles, as I have said, out of Toronto, and the area they occupy comprises as many as 60 acres. Of this area six acres represent operative floor space, which is utilised by a series of commanding and splendidly-equipped workshops, devoted respectively to structural steel work, bridge building, blacksmiths' work, machine-shop work, and boiler building and foundry-work, with, in addition, commodious pattern shops and vaults, a power-house, a pump-house, spacious storage accommodation, warehouses, stables, and other appurtenances of a thoroughly up-to-date engineering

establishment. Then a separate building is devoted to the ornamental iron departments, which comprise a machine and erecting shop, a plating shop, smiths' shop, foundry, pattern shop, drawing office and power-house. So that the lines on which the industrial arrangements of the Canada Foundry Company are laid lack nothing either in resource or in comprehensiveness.

The Canada Foundry Company, as such, it should be added, came into existence in the year 1900, when it bought up the premises and plant of the St. Lawrence Foundry at Toronto. At that time the chief output of this enterprise was cast-iron pipes, hydrants, waterworks' supplies and hydraulic accessories generally, and this plant is still in operation, but it is devoted exclusively to the manufacture of pipe and "specials." After the Canada Foundry Company came into possession it was found that the then existing works were wholly inadequate to meet their industrial requirements and the extent of their varied output. It became necessary, therefore, to increase their resources in the matter of premises, and accordingly a suitable site was acquired just outside the limits of the City of Toronto, at Davenport. It is to these Davenport Works—the industrial headquarters of the Canada Foundry Company, and consequently an important subsidiary factor in the enterprise of the Canadian General Electric Company as a whole—that I propose more particularly to devote this chapter, as not only are the works in question representative, as I have indicated, of the best engineering productive enterprise in the Dominion of Canada, but the different classes of machinery, plant and mechanical accessories turned out equal in every essential particular the best work of their kind manufactured either in the United States or in Europe.

The site occupied by the Davenport Works is almost ideal in the points of convenience and accessibility, so far as Canadian centres of railway and industrial activity are concerned. The extensive area occupied by the works, aggregating, as I have said, some 60 acres, is situated at the junction of the Grand Trunk and Canadian Pacific railroads, the former being in a sense its western boundary and the latter its southern boundary, while in the course of another year or so it will have as its northern boundary the new Toronto and Hamilton Railroad. Considering that only a matter of four and a-half years ago these large works were non-existent, and the site which they occupy was just so much waste land, they may be regarded to-day as a monumental example of the grit and enterprise which are as breath to the nostrils of the typical up-to-date Canadian.

On approaching the works the splendid suite of public offices immediately impresses the visitor favourably, and seems in a

measure to be an index to the general completeness and splendid organisation which are the dominating notes throughout the entire works. That this is so is in large measure attributable to the practical efficiency and far-sighted policy which characterise the administration of Mr. Frederic Nicholls, who is the life and soul of the entire enterprise. The general management of the business of the Canada Foundry Company, Limited (as also of that of the Canadian General Electric Company, Limited, so far as departmental executive is concerned), has been in his hands since its inception.

And here I should interpolate the information that the chief associated works of the Canadian General Electric Company are situated at Peterborough, a town about 75 miles eastward of Toronto, on the Canadian Pacific and Grand Trunk Railways. These works are devoted to the manufacture of electrical machinery and accessories, and are of great extent. Their equipment and resources are not surpassed by those of any electrical engineering works on the American continent, and employment is given to 1,000 men. I regret that I had not an opportunity of personally inspecting these works, but I was informed they were responsible for the production of the largest electrical generators yet built on the other side—each of which was of 12,500 horse-power. The "Curtis" steam turbines, for which a practical superiority is claimed over those of the "Parsons" type, are also manufactured at these works, which, I may add, were acquired by the Canadian General Electric Company, Limited, in 1891.

But it is the Davenport Works with which I have to deal at present. Passing from the company's offices to the works proper, one cannot fail to be struck with the relative disposition of the several practical departments with regard to one another and to the railway sidings, from which branch lines intersect the premises at every advantageous point, passing in many cases direct into the workshops, and greatly facilitating transport arrangements. Then the shops themselves are laid out upon the most modern canons in workshop construction and practice, which combine to promote rapidity, economy and efficiency in production, and the reduction of actual manual labour to a minimum.

Specialisation is here reduced to something like an exact science; rule of thumb, it goes without saying, is not included amongst the working calculations at Davenport Works; and nothing is handled twice when one handling is, or ought to be, sufficient. The operations of production are continuously progressive: whether it be a commonplace nut or bolt, the complicated mechanism of an express locomotive or a ponderous

mass of girder work that claims attention in any part of the works, the process of manufacture is steadily onwards, like the disciplined progression of an endless chain of dredger buckets raising the auriferous gravel from the bed of a Canadian river. And with it all there is plenty of air-space and heaps of elbow-room—no congestion or cramping, such as one finds in a crowded Lancashire or Lanarkshire engineering shop of the older persuasion. The light of Heaven is allowed free ingress to help the worker on his way and enable the perfection of finish and workmanship to be attained in all the subtleties of detail. Everybody seems busy, and orderly activity prevails everywhere; there is no empty rush, no scramble, no litter—everything works with the regularity, the precision, the smoothness of a chronometer.

It is, of course, manifestly impossible, and more particularly so for one who is not an engineer, within the abbreviated scope of such a chapter as this to enter into detail regarding all the shops, all the machines—special machines, the majority of them—all the processes which would have to be described were it my present business to enter into chapter and verse respecting all I saw when I visited the vast Davenport Works. The merest summary would almost run to prolix dimensions, but it will, perhaps, suffice in a general way to indicate the resources of the premises.

First, then, a glance at the main machine shop suggests at once a mammoth box of machinery. The air seems alive with multifarious mechanisms. Vulcan might feel at home amidst the pandemonium-like whirl, but to the mere journalist the sensation is bewildering. It measures 300 ft. by 120 ft., this big machine-house, and it carries a gallery along either side. The mechanical equipment is alike modern and complete, and the largest and smallest pieces of machinery or plant—a giant locomotive or a diminutive valve—can be handled here with equal readiness. The shop is served by a couple of electric travelling cranes of 50 tons capacity each, which reduce the difficulties of handling large and heavy pieces of plant to a minimum, and will lift a locomotive with as much ease as if it were an egg-box.

In this shop, of course, iron and steel are manipulated like so much paper and cardboard, and, where practicable, the mechanical operations are carried out on multiple principles. Thus, for example, I saw drilling machines at work drilling 20 holes at once. The capacity of this shop and the accessorial departments may be understood when I say that they are equal to the production of one complete locomotive every week. And, by the way, there is no especial consideration shown here, any more than in the States, for the feelings of a locomotive which

has seen its best days. On the contrary, as soon as the once most powerful "engine" shows the slightest disposition to be out of date, off she goes to be scrapped. There were five heavy locomotives, which to the eyes of a layman still looked fit for good business, in course of destruction at the time of my visit, while as many as 35 locomotives were in course of construction at the same time.

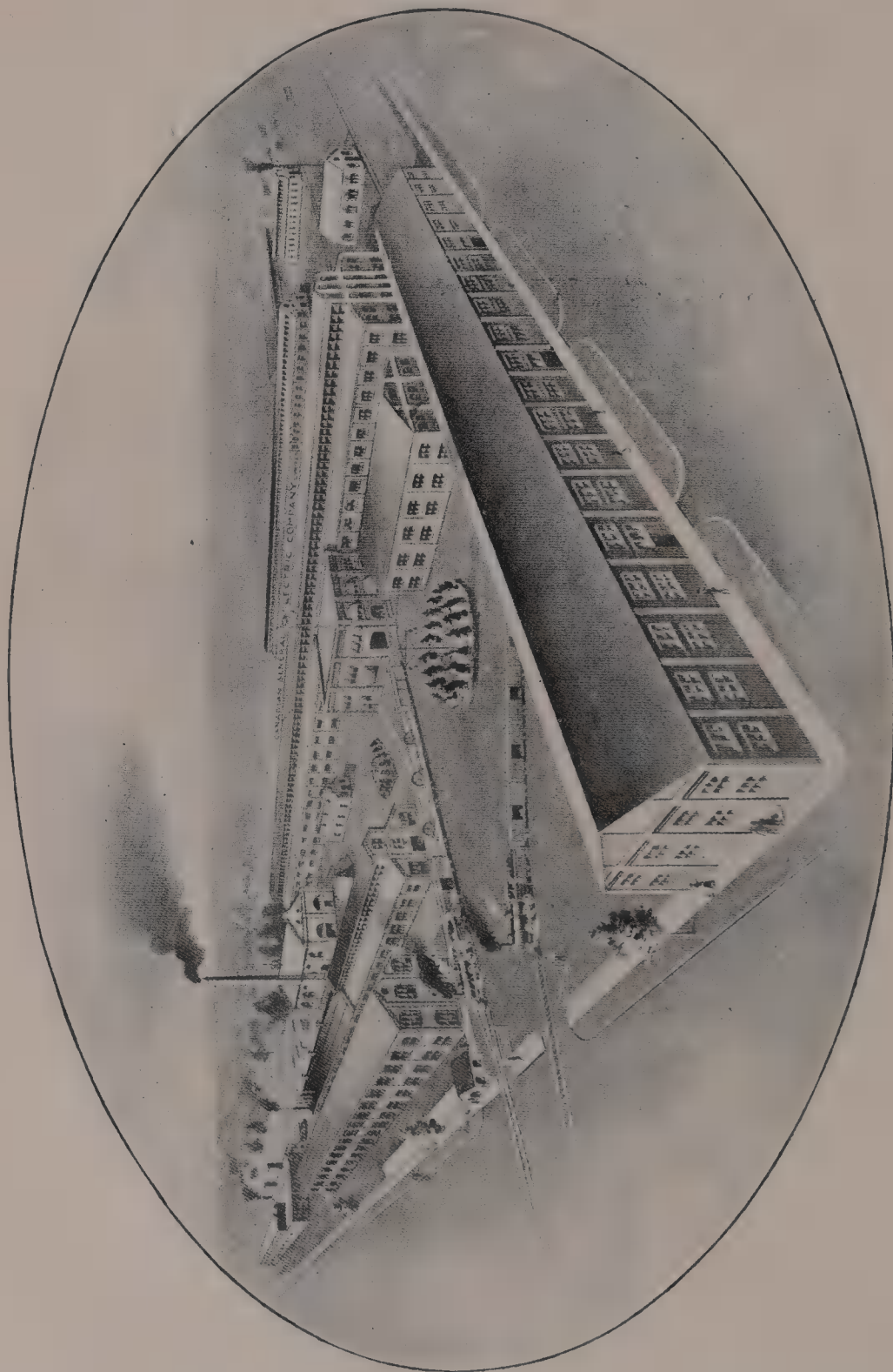
Another important item in the production here, I noticed, was steam shovels, which are of the same family breed as our steam navvies, only, if I may so express it, more so. They are bigger and heavier, and can shift more material at one operation than most of ours. Seventy-ton shovels are a normal size here, and four 90-tonners had just been turned out. A feature of the machine-room, too, is the fact that all the machines are direct-driven by their own independent electric motors.

The foundry is one more large shop, measuring, like the machine shop, 300 ft. by 120. On one side, over the moulding floor, there is a gallery equipped with a 20-ton electric crane, and the shop is served as well by a number of auxiliary jib cranes, all of them electric. Melting operations are effected by means of an installation of modern cupolas having a daily output capacity of 40 tons.

Then there is an important department housed in the bridge shop, which measures 250 ft. by 200. The roof is supported on three ranges of columns, one of the spans being 120 ft. wide. Here, again, there is a comprehensive equipment of modern machine tools, and the arrangements are such that bridge work and structural iron and steel work are accomplished under the most satisfactory operative conditions. Some of the heaviest bridge work in Canada has emanated from this shop during the past three or four years. Ample crane facilities are provided here, and a special derrick will handle a 44-ton lift, picking it up and placing it provisionally in its position—as a temporarily completed structure—in the course of half an hour. I noticed that pneumatic tools were much in evidence in this department, and it is worthy of remark that 40 per cent. of the machines in the bridge shop were of Scottish manufacture, 50 per cent. of Canadian make, and the remaining 10 per cent. of American origin. *Verb. sap.*

The blacksmiths' shop is another busy department, where an installation of twelve forges and an adequate complement of steam hammers and other tools are kept actively engaged in preparing the forgings for the machine and bridge shops.

A separate building of imposing dimensions, and four stories in height, is utilised for the manufacture of screws and nuts of every description, in which a large trade is done throughout Canada,



THE WORKS OF THE CANADIAN GENERAL ELECTRIC COMPANY, LIMITED, AT PETERBOROUGH, ONTARIO.

while of the product the Davenport Works themselves are extensive consumers. Another and rather larger building of four stories is employed as a pattern vault. Of fireproof construction and fitted with wire-glass, there is storage accommodation available here for thousands of patterns, representing an enormous amount of capital expended in labour and material. A perfectly-organised system of obtaining access to any set of patterns being available, and the safety of the patterns being practically assured by the structural arrangements, such concerns



MR. FREDERIC NICHOLLS,

Second Vice-President and General Manager of the Canadian General Electric Company, Limited, and Managing Director of the Canada Foundry Company, Limited.

as the Canadian Pacific Railway do not hesitate to lend the company their patterns and thus save the expense of making duplicates. The pattern register here contains over 30,000 entries, which will carry conviction to the practical mind as to the extent of the foundry turn-out. Underneath this pattern store are bins for the storage of moulding sand and coke ; and close at hand are the pattern-makers' quarters, where a small army of pattern-makers find constant scope for their energies.

An all-important adjunct to works such as these is the powerhouse, and it is equipped on a scale worthy of the enterprise.

It contains three wonderful steam-engines, which develop 600 horse-power and drive electric generators having an output of energy equivalent to 2,000 amperes at 230 volts, and furnishing current for lighting the entire works and power for driving the machinery throughout the different shops. A large air-compressor also finds a place here and supplies the compressed air for operating the pneumatic machine tools in the machine and bridge shops.

But I am becoming prolix. I must only add that I marked the presence of various other buildings besides those which I have particularised, amongst them storage buildings for oil, paints, timber, iron, steel and the other raw materials of the industry. It would be interesting to describe the arrangements for protection against fire and those connected with first-aid to the injured and ambulance practice, but space forbids. Then I have previously indicated the existence elsewhere of what are known as the "Subway Works," devoted to the manufacture of ornamental iron work, fences, grilles and the like.

For the rest I should only like to say that the Canadian General Electric Company, Limited, and the Canada Foundry Company, Limited (of which associated concerns Mr. W. R. Brock is President, and, as already mentioned, Mr. Frederic Nicholls, second Vice-President and General Manager, and Managing-Director respectively), have consistently paid 10 per cent. dividends on their Common stock yearly since 1899. The Foundry Company's accounts for the last working year show a handsome profit and loss statement, being 170,000 dollars over and above the figures for the year previous. Altogether, the Canada Foundry Company's enterprise deserves to rank amongst the world's most remarkable engineering concerns, for in less than five years it has grown from a modest little industry employing 40 mechanics to a great undertaking employing over 1,300, and in a position to produce under the best modern conditions anything mechanical, as I was assured and convinced on the spot, from the smallest set screw to a Mogul engine.

CONCLUSIONS :

That no more completely or modernly equipped engineering works than those of the Canada Foundry Company, Limited, are to be found on the American Continent or in Europe.

That these works show that Canadian enterprise and technical skill will enable the Dominion to hold its own in mechanical engineering in competition with either Europe or the United States.

That, considering that they have only been in existence four and a-half years, these works rank as one of the industrial wonders of Canada.

CHAPTER III.

HARNESSING NIAGARA.

A STUPENDOUS ENGINEERING ACHIEVEMENT.—THE ELECTRICAL POWER DEVELOPMENT COMPANY OF ONTARIO, LIMITED.—PIERCING THE SOLID ROCK.—A TITANIC HYDRAULIC PLANT.—SOME IMPORTANT AND FAR-REACHING CONTRACTS.—THE PIONEERS OF THE GREAT PROJECT.—THE FUTURE FULL OF PROMISE.

I HAVE now to deal with another aspect of Canadian engineering enterprise and skill—and let me say at once that never in all my life have I seen anything that appealed to my imagination so vividly as did the power works constructed by the Electrical Development Company of Ontario at Niagara Falls, whence the Toronto and Niagara Power Company distribute the current generated. In other parts of the world I have seen many of the greatest triumphs of engineering skill, where Nature in her most forbidding mood has been conquered and turned to the service of man. But for grandeur of conception, and a degree of audacity that is almost contemptuous in its disregard for the apparently impossible, I have never seen anything that equals the engineering feat successfully accomplished at Niagara.

On my return to England, I heard by special cablegram from Sir H. M. Pellatt, president of the company, and president also of the Toronto Electric Light Company, that splendid success had been achieved in practical operation. Here is the cabled message which I received :—

“TORONTO, *November 19th.*

“First electric current arrived at Toronto to-night.
Everything on first unit (12,500 horse-power) running
smoothly and very satisfactorily. PELLATT.”

Thus, after months of waiting, power from Niagara Falls was actually being transmitted to Toronto, where the receiving station of the Electrical Development Company had long been ready for its reception.

When a unit of the horse-power equipment was tested the headgate was opened, and the water filled the long penstock, the 12,000 horse-power turbine began to spin as smoothly as could

be desired, and the largest vertical electric generator in the world was put in motion. The mammoth machinery ran as evenly, smoothly and quietly as a watch, and the assembled engineers and officials of the company were delighted with the success of the performance.

Now that a start has been made the running will be continuous, but not excessive for some time. At the test referred to the forebay filled with water to supply the power-house as soon as needed, the water being admitted from the Dufferin Island's



Lieut.-Colonel Sir HENRY M. PELLATT,
President of the Electric Development Company of Ontario, Limited, &c.

channel, but the removal of the cofferdam has progressed so far that the water now runs in from the river proper.

There is no considerable water-power nearer Toronto than Niagara Falls, and at present, I understand, it costs the Toronto Electric Light Company from 54 dollars to 60 dollars per horse-power to develop its power from steam, and this may be taken as a fair estimate of the average cost per horse-power in Toronto under existing conditions. The Electrical Development Company

should be able to sell its power at very much lower prices than these, so that there is a very large market anxious to take power as soon as it can be delivered.

The Electrical Power Development Company of Ontario was formed for the purpose of generating 125,000 electrical horse-power from the waters of the Upper Niagara River, and the Toronto and Niagara Company for conveying the power to Toronto and other parts of the Province of Ontario. Thanks to the courtesy of the directors and the assistance of the general manager, I was able to go through the works, and I have great pleasure in recording, though I fear inadequately, a few of my impressions.

But first of all let me hark back a little, in order that what has recently been accomplished in the matter of harnessing Niagara may be properly appreciated, and to see how far efforts have been made in the past to utilise the vast amount of power running to waste at the gigantic cataract. It has been calculated that nearly 6,000 miles of water, pouring down from the upper Great Lakes, with their 90,000 square miles of reservoir area, enter the gorge of the Niagara River at a point where its width of one mile is reduced by intervening islands to two channels of 3,800 feet, and where, within half a mile of rapids, the river falls 55 feet, ultimately, with a depth of about 20 feet at the Horse-shoe Falls, plunging into the lower river, 165 feet below. The ordinary flow had been found to be about 275,000 cubic feet per second, and its daily force something over 200,000 tons, which has been calculated to be about equivalent to the "latent power of all the coal mined in the world each day."

Professor Unwin has computed that Niagara Falls represent theoretically about 7,000,000 horse-power, although the estimates of other authorities exceed these figures, and for practical purposes several hundreds of thousands of horse-power might be utilised without appreciably diminishing the natural and picturesque beauty of the world-famous spot. Although the utilisation of any important, or even trifling, portion of this vast power has been a matter of latter-day enterprise, still so far back as 1725 some far-seeing spirits anticipated events by locating a pioneer sawmill at the Falls. Early in last century, also, the pioneers in the local settlement of the district, we are told, "contemplated the probability, but were unable to demonstrate the practicability, of reducing the mighty force to obedient and useful service. They dwelt upon, and to some extent exploited, the idea; but before the development or adoption of any method promising satisfactory returns steam and steam engines had attained such a place in the favourable estimation of manufacturers that water-powers

in general, and especially those inconveniently situated and variable in quantity and quality, fell into comparative disesteem."

Nevertheless, in 1852, various primitive types of hydraulic machinery were erected to utilise in some measure the power created by the Falls. In 1853 the Niagara Falls Hydraulic Company was incorporated, and the construction of a canal 70 feet wide by 10 feet deep was commenced, but was suspended a few years later through want of funds. It was not, therefore, until 1870 that Niagara water power was seriously utilised for industrial purposes, and in that year a grist mill was erected at the lower end of the canal just mentioned. Seven years later the Niagara Falls Hydraulic Company was reorganised, through the enterprise of the late Jacob F. Schoellkopf and the late Abram Chesbrough, as the Niagara Falls Hydraulic Power and Manufacturing Company, and this corporation has been an important factor in the development of the industries which have since grouped themselves in the neighbourhood of Niagara Falls. In 1881 this company established its initial station for the production of electricity on a commercial basis, and since then the building of power-house after power-house has taken place until an aggregation of some 640,000 horse-power, or more, has either been developed or is in course of development. It was in 1895-96 that the Niagara Falls Hydraulic Power and Manufacturing Company began the erection of its second power-house, the mechanical arrangements being such that the water could be employed under the full available head of 210 feet. In the first section of the power-house four double-discharge Leffel turbines were laid down, having a total capacity of 6,850 horse-power. This installation being an unqualified success, two more sections were promptly added, giving a combined capacity of about 35,000 horse-power, the consumers of which comprise several of the most important industrial concerns at Niagara Falls and in the neighbourhood thereof, and also in locations further afield, including Buffalo, Tonawanda, Lockport and Olcott, and embracing not only railway, lighting and waterworks companies, but paper-making, brewing, milling, cutlery, emery wheel, alkali, electro-chemical, plaster, machinery, iron and steel, belting, cordage, motor, cereal and food manufacturing concerns, and many more industries of the most miscellaneous description.

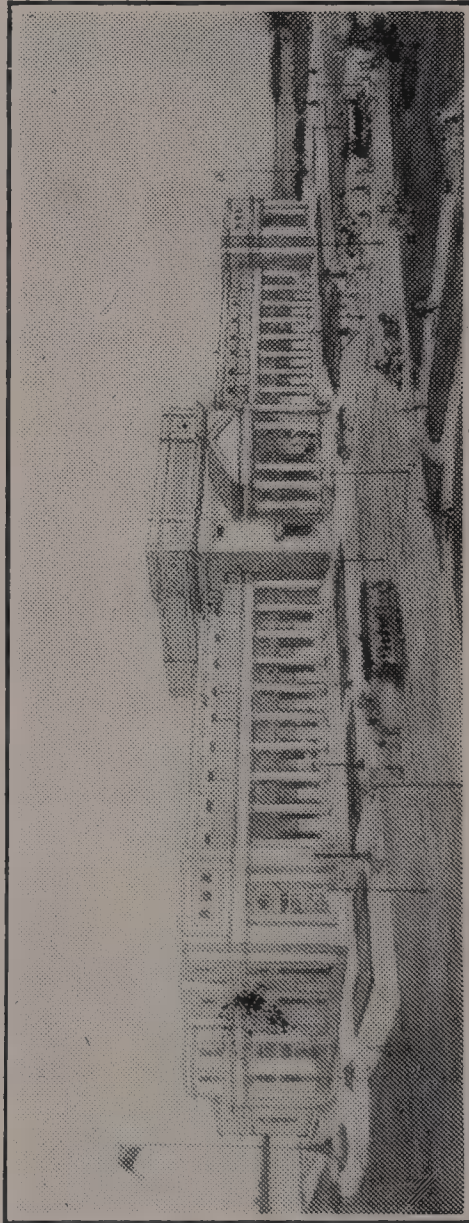
Further projected enterprise is likely to increase the total power generated up to as much as 750,000 horse-power, which will probably mark the maximum, as it is anticipated that further power concessions or franchises will not be granted, in order that the natural beauty of the Falls themselves may not be seriously impaired. Happily, as matters stand at present, the buildings erected are of considerable architectural and artistic pretensions,

contributing a certain element of decorative value to the landscape. There have at different times been various projects suggested for the transmission of the power created at Niagara Falls to great distances—as far, for instance, as Chicago in one direction and New York in another—but the demand for power in the more immediate neighbourhood of Niagara Falls has increased more rapidly than the productive capacity. The result has been that the power produced has been absorbed locally, or within such moderate distances as those which separate Niagara Falls from Buffalo (22 miles), Toronto (80 miles), and Syracuse (160 miles). At present Buffalo takes about 24,000 e.h.p., and Toronto about 30,000 k.w. In this connection it is noteworthy that the manufacturing population which makes its living directly or indirectly out of the power produced at Niagara and transmitted to interested districts amounts to something like three-quarters of a million persons.

It would be interesting to give details of the electrical installations at the several stations of the Niagara Falls Hydraulic Power and Manufacturing Company, and the arrangements by which their numerous customers utilise the power supplied by the Company, but these would involve descriptions too prolix for inclusion here. I must, instead, come to my impressions of the works at Niagara Falls of the Electrical Power Development Company of Ontario, with which this chapter is more particularly concerned. And here let me say at once that the undertaking is Titanic. A huge cofferdam had to be built across the most turbulent part of the river, where the mass of water from a thousand miles of inland seas appears to gather its greatest velocity before hurling its thundering way over the Niagara Falls. With what infinite labour each rock-filled wooden crib was sunk into its place only those responsible for the work can understand. For two years the work was arduously continued, in spite of every difficulty, every discouragement and every failure, until at last the dam was an accomplished fact, and the fierce Niagara was turned aside. Standing, as I did, near the end of this dam, with the seething, swirling river dashing impotently with the force and speed of a railway train at my feet, it was possible to realise to some extent the sum of human effort involved in its construction.

The erection of this dam was inevitable, because it was found necessary to reclaim no less than 14 acres in order that a concrete gathering dam, 20 feet high, might be built for the purpose of diverting the water of the river into the wheel-pit, where the turbines are placed. This wall is a solid piece of masonry, which should last as long as the rocky hills which rise but a short distance away. Upon a portion of the river-bed thus reclaimed the

company are building the power-house. At the time of my visit about half the structure above ground had been finished. It has very considerable architectural pretensions, and, indeed, a visitor, if not otherwise informed, might well mistake it for one of the fine buildings in which the public affairs of the Province



THE POWER HOUSE OF THE ELECTRICAL DEVELOPMENT COMPANY OF ONTARIO, LIMITED,
AT NIAGARA FALLS.

are conducted. ▼ But the real wonders commence when a visit is paid underground.

Right down through 160 feet of solid rock the excavators had forced their way to make chambers for the turbines and to

bore the tunnel into the centre of the river. The plan adopted was, to all appearance, simplicity itself. It was to let the water of the Niagara River pour into a deep wheel-pit, where the turbines should be placed. The revolving turbines would rotate a shaft, which in turn would revolve the generators, which, finally, would produce the electricity. To obtain the greatest possible power, the pit is right in that part of the river where the water is six feet deep, and where the velocity of the current is nearly 40 miles an hour.

Before this description originally appeared in the columns of *The Financier*, a part of the mighty Niagara River was rushing through the penstocks down on to these turbines, and 25,000 horse-power let loose to fly like lightning over the transmission lines to the City of Toronto, to run its street cars, light its streets and homes, and supply its manufacturers with cheap power. But on the occasion of my visit to the wheel-pit, in place of the mighty rush of water in the tunnel there was only a thin, trickling stream an inch or so deep; but the roar of the waters outside was as that of a hundred monster guns—one continuous, crashing sound, that seemed to rend the air and paralyse each throbbing sense save that of hearing. Never again can human feet pass along this awesome tunnel, for Niagara has now resumed its unconquered sway, but those who have been through its murky length will never forget its mighty reverberating thunder.

Coming by elevator to the surface, I inspected the splendid hydraulic plant which has been installed for dealing with the ice when it accumulates in the river. I was informed that the ice would impinge against the stone wall of the power-house, and pass automatically over a spill-way into the river, while the water would run through submerged arches beneath the ice into the penstocks. Any slush ice which found its way through the arches would be kept out by some huge screens which are erected under cover, and are quite free from any outside exposure.

Half a mile away from the power-house there is situated the Niagara transforming house. The current, when generated, is carried in ducts at a voltage of 12,000 volts to this house. It is there stepped up to 60,000 for long-distance transmission to the transforming house at Toronto. A glance at the map will show that Niagara is situated almost opposite Toronto, on the other side of Lake Ontario. The distance is, roughly, about 40 miles, but the lake is so deep that it was not possible economically to convey the power across its bed. There were also other objections, such as the impossibility of perfect insulation and the difficulty and cost of repair. It was decided, therefore, to convey the power overhead, on heavy steel towers, round the end of the lake, a distance of some 80 miles. On the railway journey these

towers and the cables are visible nearly the whole distance. Each wire is not less than six feet from any other wire. To convey its power the company acquired a private right of way from Niagara to Toronto, a distance, as I have said, of about 80 miles. The right of way varies in breadth from 80 feet to 100 feet.

It is obvious that in conveying power so long a distance many precautions have to be taken to avoid interruption from accidents. If these were not of a most complete and comprehensive character, the tramways, the factories, and, indeed, the whole industrial life of a town might be brought to a practical standstill. It becomes, therefore, part of my purpose to describe these precautions at some length, in view of the interest being taken in the South African scheme for carrying electrical power 800 miles for the supply of the Rand Mines.

The company has entered into a contract with the Toronto, Niagara and Western Railway Company for the unused portion of the right of way to be used for the construction of a railway. When this railway is built—and it will, of course, take its power from the company—the difficulty of reaching any given point in the most expeditious manner will be overcome. But until then the transmission line will be patrolled day and night by men mounted on bronchos and in automobiles. The whole distance will be divided into sections of 10 miles. In each section there will be a repairing outfit, and the whole will be connected by a private telephone line, and also by an independent line leased from the Bell Telephone Company.

It is considered certain that no breakdown could occur which would not be repairable within a few hours. But the breakdown would have to be of a very serious character to cause even a minute's interruption, as the company has a double, interchangeable circuit. Both circuits would, therefore, have to be broken before the system could be brought to a standstill. But to provide for even this eventuality the company intend constructing a second line of towers, with many inter-switching connections, so that, in the event of a break, power will be automatically switched on to the other line. These precautions appear to provide for every eventuality, and nothing short of an earthquake should render them futile.

It is almost needless to point out that the advent of this company should have a very far-reaching effect upon the prosperity of Toronto. One of the first essentials for a prosperous manufacturing centre is that cheap power should be available. This the company will be able to supply, and I anticipate that, owing to this, the great and prosperous city of Toronto will be able to hold out still further inducements to the manufacturer to establish his factories in its environs.

That the company has a splendid commercial future before it seems perfectly apparent. Already contracts have been entered into with the Toronto Railway and the Toronto Electric Light Company for their whole supply of power, also with the Toronto, Niagara and Western Railway, the Toronto Suburban Railway, the Toronto and York Radial Railway, and the Niagara, St. Catherine's and Toronto Railway. Power for the lighting of the city will also be supplied, and hundreds of large manufacturing consumers of power will be profitable customers of the company. Two contracts, for power, which alone provide sufficient revenue to pay the interest and redemption on the whole of the bonded indebtedness, have been concluded for a term of 18 and 25 years respectively with the Toronto Railway Company and the Toronto Electric Light Company. The transmission line through Brantford, Paris, Woodstock, London and St. Thomas is under construction, and will reach a district where a large demand for power will arise. In addition to the firms already mentioned there have been enquiries for power from United States firms for upwards of 63,000 horse-power.

After my visit to the works it was perhaps only natural that the questions should occur : Who were the originators of this bold and wonderful project ; whose personality was sufficiently commanding to induce capitalists to embark in so daring a venture ; who were the engineers whose skill had overcome the forbidding obstacles placed by Nature in their way ; who had supplied the organising powers, the keen business instinct that had realised the commercial possibilities of this great undertaking ?

To obtain an answer to these questions was an easy matter. The Toronto man is proud of his city and of the men who have made it, whose industrial ramifications stretch far afield. Without hesitation you will hear the names of Sir Henry Pellatt, the president of the company, and Mr. Frederic Nicholls. The high financial standing of both these gentlemen, the great success of all their commercial enterprises, the personal magnetism which seem common to both—they had but to associate themselves with the undertaking to immediately inspire confidence, and to render forthcoming the considerable amount of capital necessary for the successful accomplishment of the great work.

That these gentlemen should secure the services of the foremost electrical engineers on the American Continent is only what might have been anticipated. The precious services of Dr. F. S. Pearson were secured as consulting engineer, those of Mr. Hugh L. Cooper as chief hydraulic engineer, of Mr. B. R. Value as resident engineer, and of Mr. L. J. Hirt as chief mechanical engineer. In addition to this galaxy of scientific electrical engineering talent, the company secured the invaluable services

of Mr. W. T. Jennings as Canadian consulting engineer. To these men will be due the imperishable glory of having carried out the greatest electrical project of the age. But any reference to the men who have been associated with the enterprise in its early and difficult stage would be incomplete without a reference to Mr. H. H. Macrae, the general manager of both companies. This gentleman's intense personality, untiring energy, unfailing tact and business acumen have done much to bring the company within the regions of commercial success.

I have written at some length of my visit to this undertaking—of the men who in the first instance conceived the possibilities of harnessing to the purposes of man the never-ceasing waters of the “cataract of fearful height,” as Father Rageneau described it as long ago as 1648, and of those who have executed the work—because I know that many English investors are interested in the company. It will be of some satisfaction to them to hear from a disinterested observer how well their money has been spent, and how great the possibilities are of their receiving a substantial return upon their investment.

CONCLUSIONS :

That the Niagara Power Scheme is a triumph of engineering skill.

That current has been satisfactorily conveyed to Toronto.

That success is thus absolutely demonstrated.

That an enormous demand exists for the power, and the future of the companies is assured.

That important and lucrative contracts have already been secured, and numerous applications received.

That Sir Henry Pellatt and Mr. Frederic Nicholls are, in this connection, in the forefront of Canadian regard to-day.

That English investors may be congratulated alike upon achievement and prospects.

CHAPTER IV.

CANADA'S MAGNIFICENT WATER POWERS.

THE CHEAP GENERATION OF ELECTRICITY FOR PUBLIC UTILITY AND INDUSTRIAL NEEDS.—THE MONTMORENCY FALLS.—THE BASIN OF LAKE ST. JOHN.—THE CITIES USING POWER FOR MUNICIPAL AND FACTORY PURPOSES.—THE SHAWINIGAN WATER AND POWER COMPANY.—CONTRACTS IN HAND.—THE ELECTRICAL DEVELOPMENT COMPANY OF ONTARIO.—KAKABEKA FALLS.—WATER POWERS AT WINNIPEG.—POWER RESOURCES OF BRITISH COLUMBIA.—VANCOUVER POWER COMPANY, LIMITED.—WATER POWER SECURITIES AS AN ATTRACTIVE INVESTMENT.

I HAD not landed on Canadian soil many hours before the importance of the country's water powers in respect of commercial and industrial development was most strongly impressed upon my notice. I saw the beautiful, historical city of Quebec covered with a network of tramways, or light railways, as they are known in Canada, which were entirely worked by power supplied from the Montmorency Waterfalls. I ascertained that practically all the electricity for the lighting of the city and the motive power for the working of several factories were also supplied from the same source. The tramway cars were swiftly running, and, owing to the lowness of the fares, invariably well patronised by the public.

Although my visit to Quebec was necessarily a short one, I travelled by the light railway to the Falls for the purpose of seeing the new works being erected there for increasing the supply of electrical energy. Anything more delightful and picturesque than the Falls themselves it would be difficult to imagine, and it was naturally a source of great gratification to me, a visitor, to find that the existing works, and those in course of construction, in no way detracted from the natural beauty of the scenery.

A new dam is being constructed, and it should prove a very valuable addition to the plant. The height from the bed of the river to the crest will be about 80 ft., and the feed-pipe has to be so placed as to give an effective working head on the water-wheel of 60 ft. The length of the crest of the dam

will be 240 ft., and arrangements have been made to allow for 12 ft. of water over the crest should there be exceptional floods. By these new works the Quebec Railway, Light and Power Company will very considerably increase its supply of power, and at, I understand, a comparatively low cost. The capital of the company is largely held in Canada. It was what I saw at the Montmorency Falls which made me determined to obtain all the information possible in reference to the water powers of the Dominion.

A study of the map quickly shows that Canada is one of the best watered countries in the world. Throughout the length and breadth of the Dominion there is an uninterrupted succession of lakes and rivers. Many of these possess natural facilities for the storage of their flood waters. It is a curious fact, pointed out by the Statistician of the Department of Agriculture at Ottawa, that, with the exception of the prairie region, the rivers of Canada differ from those draining the Western and Central States of the United States of America in that they are not naturally navigable from their mouths or above tidal influence to any considerable extent, except in detached sections. In Canada many of the great rivers, east and west, are interrupted by rapids, chutes and cataracts, affording a wonderful variety, quantity and quality of water powers.

As an illustration of this, the result of an official examination into the resources of the region tributary to Ottawa may well be given. It was found that within a radius of 50 miles there was an available water power equal to nearly 900,000 horse-power. If the figures of the relative cost of steam-generated electricity and of power evolved by water given later on in this chapter are approximately correct, the possession of water powers in and near Ottawa alone represents a saving per annum of 14,500,000 dollars. These figures apply to the water powers available within 50 miles of the capital, but I believe there are reliable estimates showing that within 200 miles of Ottawa there are available 1,476,000 horse-power. Other instances might well be given: the engineers of the projected Montreal and Ottawa and Georgian Bay Canal estimate the water powers developed along the route of the canal at 700,000 horse-power.

Let another locality be taken: In a single region, of which the basin of Lake St. John is the great water reservoir, there are rivers and streams bearing over 700,000 horse-power, all of them being capable of utilisation for manufacturing purposes. The St. Lawrence River and its tributaries have an estimated capacity of 10,000,000 horse-power. The Falls of Niagara have an estimated force of 7,000,000 horse-power, of which one-half belongs to Canada. Going right away to the West, it is impossible

to compute the enormous power from the mountain-bed streams and rivers of British Columbia. These are only a few instances, but they suffice to show what an exceedingly valuable asset Canada possesses in its natural water powers. I need scarcely point out that up to the present only a fraction of these powers has been utilised, but I found that the Canadians were keenly alive to their value, and I have little doubt that the great industrial Canada of the future will owe much to the possession of these wonderful sources of energy.

Leaving Québec, I found that all the great cities had the inestimable advantage of these powers within economic distance, which in many instances were being utilised. In others arrangements were being made to take full advantage of them. I ascertained that not only were the ordinary tramways in various cities being worked by the energy generated from these water powers, but that light railways of considerable length were also being operated from the same source, and from these facts the conclusion was forced upon my mind that the day is not far distant when the transcontinental lines of Canada will operate many important sections of their systems entirely by power generated from the natural giant forces of the various rivers. I may mention that the Canadian Pacific Railway have at the present time 15 or 20 miles of their lines around Vancouver, British Columbia, operated by electricity supplied by the British Columbia Electric Light Company, Limited.

Apart from the supply of current for the lighting of the streets of Quebec, many of the factories are worked by power supplied from these sources. A moment's reflection is sufficient to show what an important bearing the possession of these facilities must have on the future manufacturing developments of the country. Experience has abundantly demonstrated that electrical energy can be supplied by water power over wide areas at a cheaper rate than by any other means. The cost of electrical energy generated by steam has been estimated at 25 dollars per horse-power per annum, whereas the same power evolved by water should not cost more than 10 dollars yearly. Personally I think this estimate too low, but the figures will serve as a comparison of the respective costs of power generated by the two methods.

Apart from a lower cost, a manufacturer can switch on power for the working of his machinery with the same facility as he can move a switch for the lighting of his premises. The tremendous initial saving effected in the way of boilers and engines over the old method is perfectly obvious. In Montreal there is a very similar state of things to that which exists at Quebec. The tramways, the lighting and many of the factories are operated by power obtained from the waterways in the district. These

water powers are being worked by various companies. Amongst the principal of them may be mentioned the Montreal Light, Heat and Power and the Shawinigan Water and Power Company. A cement works near Montreal also contemplates taking power from this company.

I have given these two instances, which have come within my personal knowledge, because they indicate how keenly alive commercial people are to the importance of obtaining as quickly as possible power from these sources. The Shawinigan Company are, of course, supplying the Montreal Light, Heat and Power Company and the Montreal Street Railway with power, and, I believe, recently very important contracts have been entered into with those companies for a further increase.

Altogether, the Shawinigan Company's transmission system involves about 350 miles of line, covering a large part of the Province of Quebec. The new lines south of the St. Lawrence will open up an extensive and profitable field for the company's business, contracts already having been made for the supply of over 5,000 electrical horse-power. A great portion of this is to be used for the operation of the mills in connection with the mining and manufacture of asbestos at Thetford, Black Lake, Danville and other points.

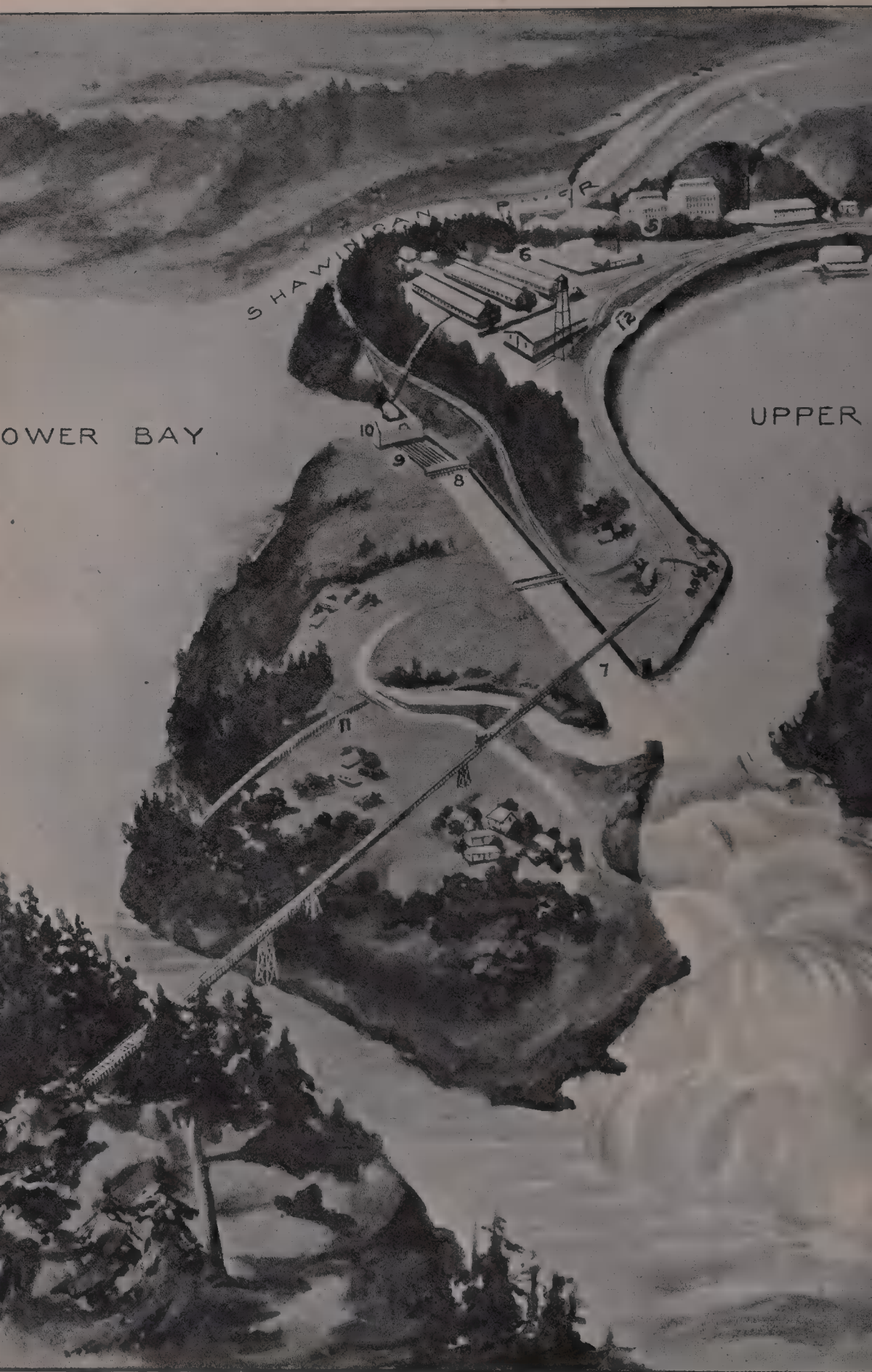
This undertaking is a very representative Canadian power company, and its history and present position contain many points of interest. Before reciting its doings it may be well to say a word as to the natural features of the country, which have a special bearing upon the water-power exploited and to be exploited by the company. About half-way between Quebec and Montreal there empties into the St. Lawrence one of the most important rivers of Canada—the St. Maurice River. It drains about eighteen thousand square miles of country, having its source far north at the great divide between the valley of the St. Lawrence and the valley of the Hudson's Bay. One of the features of this river is the immense number of large and small lakes which are scattered over its watershed, and which form reservoirs for its waters. The effect of these lakes is to equalise the flow and to prevent those great variations in level which, in the case of many rivers otherwise well adapted for yielding power, militate against their economic value. Another matter of importance concerning the St. Maurice, regarded as a source of power, is the character of the country through which it flows. This region is to a large extent covered with forest, and is unfit for agriculture. This timber will not be materially encroached upon for a lengthened period, and, indeed, in view of the policy of forest conservation which is developing in Canada, it is unlikely this stretch of country will ever be denuded of trees, even though the mature timber

may be utilised. This is an important matter in connection with the question of power, because the river may be regarded as having not only regularity but permanency of level.

The special charter under which the company operates was granted by the Provincial Government of Quebec in 1898. It gives the company very wide and extensive rights and powers. It can acquire and hold lands for other purposes than developing water power, and it has the right to expropriate any land required for the purpose of building transmission lines from Shawinigan Falls to any point.

When the company purchased from the Provincial Government of Quebec its property at the falls, and the water-power at that point, it included the acquisition of real estate to the extent of eleven hundred acres. The ownership of this block gives absolute control of the Shawinigan Falls, and any water-power it may be capable of developing. Also this acreage amply suffices for the establishment of a considerable town, and the town-site value of the estate is a highly important asset. Already Shawinigan Falls, the town, has been organised under special charter from the Government of Quebec, and the plan of it has been laid down with a view to the erection of a model manufacturing town. A portion of the company's land has been reserved for mill-sites, and the rest, I understand—some 500 acres—has been laid out in lots for residential purposes. The whole scheme has been in the hands of thoroughly competent men, and already the character of that part of the town actually built is excellent, the buildings being substantial and comely, and the rapidity with which the place is developing is shown by the fact that even now there is a good water supply, a sewerage system, a market hall, a city hall, a fire brigade, and, of course, electric lighting, and population of about 6,000. Manufacturing companies and firms in the province are evidently keenly alive to the advantages offered, as is demonstrated by the number and importance of the concerns already taking power or putting up mills in the vicinity of the falls. A bird's-eye view of the district appears overleaf.

The first work of the company was to excavate a canal from a point above the crest of the falls, and to construct pen-stocks about 450 feet in length to conduct the water to the power-house at the level of a lake below the falls. This building is solidly constructed of steel and brick, and contains five power units, three of which consist of a pair of turbines, each developing 6,000 horse-power, and two units of 10,500 capacity. There is an electrical generating plant in proportion to the turbine power developed. From Shawinigan aluminium cables run along the Canadian Northern Quebec Railway to the company's terminal station in Montreal.



- 1—Hotel.
- 2—Cotton Mill.
- 3—Carbide Works.

- 4—Second Development.
- 5—Pulp and Paper Mills.
- 6—Aluminium Works.



SHAWINIGAN FALLS

7—Canal.
8—Bulkhead.
9—Penstocks.

10—Power House.
11—Log Slide.
12—Electric Railway.

The company commenced its operations on January 1st, 1901, by the supply of water-power to certain industries in the neighbourhood of the falls, and by January, 1903, it was delivering power to the city of Montreal. The terminal station there is solidly and well built. Already 3,000 horse-power is converted into direct current for street railway use, while 12,000 horse-power is converted to 60-cycle current and delivered to the Montreal Light, Heat and Power Company for general distribution. I am officially informed that the load on this station increases by from 2,000 to 4,000 horse-power each year. On the way to Montreal the conducting cables supply electricity to several towns through or near which they pass, particularly Joliette, St. Paul l'Ermite, Grand Mere, Sorel, St. Joseph, Lanoraie and Berthier.

Last year a transmission line was built across the St. Lawrence River, the chief objectives being Thetford Mines, Black Lake and Danville. Here are the great asbestos mines, which have heavy requirements for power, the latter being likely to increase in the future. This year about 5,000 horse-power is being delivered to Thetford Mines and Black Lake and Danville. It appears that, with regard to the cost of extensions, it has been the experience of this company that the incidental business along the line of route of its transmission lines covers the fixed charge on the entire cost of such lines.

Among the industrial undertakings already established at Shawinigan there are some of such dimensions that the managements prefer to put down their own hydraulic plant in separate power-houses. For example, the Northern Aluminium Company has erected an establishment which claims to be the largest electro-chemical installation of the kind in Canada. The Power Company have constructed pen-stocks for the conveyance of an adequate head of water to the turbines of the Aluminium Company, and the latter manufactures aluminium from the oxide by the Hall process, which is, I understand, the only one by which aluminium has ever been produced in any considerable quantity in either Canada or the United States.

There is also the Belgo-Canadian Pulp and Paper Company's mill, which is located on the bank of the river, and takes 8,000 horse-power of water. The company owns large tracts of timber land in the watershed of the St. Maurice, from which the wood used in producing paper and pulp is cut and floated down the river to the mill. The Shawinigan Carbide Company has put up what is described as a splendid example of modern mill construction, all the buildings being of steel and brick. The capacity of the mill is 5,000 tons of carbide per annum. It is anticipated that in the near future Shawinigan will become a centre of the textile industry, and the North American Cotton

Company has been formed for the express purpose of putting up a cotton mill in the town, which will, in the first instance, be equipped with 1,000 looms. It is hoped the mill will be ready to commence operations next spring.

In the matter of transportation Shawinigan is well placed. The Canadian Northern Quebec Railway from Montreal to Quebec passes through the locality, and a branch line of only four miles connects with Shawinigan. Then there is the St. Maurice Valley Railway, running from the falls to Three Rivers, where the St. Maurice River flows into the St. Lawrence, and connecting there with the Canadian Pacific Railway main line. Thus Shawinigan is about 20 miles from tide-water, which distance is covered by railway, and at Three Rivers ocean-going ships are available for the conveyance of goods to all quarters of the globe. Eventually the St. Maurice Valley Railway is to be continued through Shawinigan Falls to link up with the Grand Trunk Pacific, some 30 miles to the north. As showing the forward state of the new town and the enterprise of all concerned, I may mention that there is a Shawinigan Falls Terminal Railway, operated electrically, which carries freight between the factories and the two steam railways. This application of electric power to the local line is merely a beginning. It may be safely asserted that, with the facilities here afforded of generating electricity so cheaply, it would form the best and most economical method of supplying power to all the railways within, say, one hundred miles of Shawinigan Falls.

Quebec is approximately the same distance to the east of Shawinigan as Montreal is to the west. In the not distant future the company will lay down a line direct to Quebec. The system of transmission will then effectively cover a territory which to-day includes the greatest manufacturing centres in Canada. With facilities for cheap and abundant power an effective stimulus to industrial activity will certainly be given, and, looking at the incalculable natural resources of the province, it is difficult to put a limit to the commercial and economic expansion that will indubitably take place. It takes no extraordinary effort of the imagination to foreshadow the building at Shawinigan of a huge city, forming an industrial and manufacturing centre second to none in North America, where gigantic and innumerable enterprises will be carried on, whose life's-blood will be the cheap and abundant power from the company's installations. And the picture is in no wise fantastic: it would be just an ordinary economic development such as countless others which are taking place under our eyes all over Canada.

The capital stock of the company consists of 6,500,000 dollars. Five million dollars First Mortgage Five per Cent. bonds have been issued. From what I have seen of the company's operations

these bonds seem to me to be well worth the attention of investors.

The City of Montreal is receiving some of its power from Lachine Rapids. These rapids are exceedingly picturesque, and well repay a visitor for the trouble of a short railway journey by the Grand Trunk Railway. He can, in the season, leave Montreal in the afternoon for Lachine, shoot the rapids and come back by boat in the early evening.

The Lachine Rapids, in spite of the enormous volume of water from the St. Lawrence River passing through them, are unfortunately only of minor value as a power, owing to the absence of head or, less technically, fall. It is for this reason of fall that Canada claims the four most important powers on the North American Continent, namely Niagara, *facile princeps*, Shawinigan, Fort Francis and Buntzen, all with over 300 feet of head, the last 418 feet, the property of the Vancouver Power Company, Limited.

Proceeding West, the flourishing city of Toronto is soon reached. Recently the city has been connected with the Niagara Falls, 80 miles away, by the Electrical Development Company of Ontario. I have already endeavoured to describe this company's wonderful works at Niagara, but I may, with regard to the financial position of the company, add here that the capital stock amounts to 6,000,000 dollars, in 100 dollar shares. There are authorised in First Mortgage Five per Cent. Gold bonds 10,000,000 dollars, of which there are issued 8,000,000 dollars. The proceeds of the bonds issued, it is estimated, will be sufficient to provide for the installation of 100,000 horse-power, out of the 125,000 horse-power authorised, and it is believed that 50,000 horse-power will be available for sale shortly, and that the net earnings derived from the sale of this 50,000 horse-power alone will amount to considerably more than 800,000 dollars—a sum sufficient to cover the interest on the bonds twice over—leaving the surplus and the proceeds of the remaining 50,000 horse-power available for dividends on the common stock, reserve funds, &c. Two contracts for power, which alone provide sufficient revenue to pay the interest and redemption on the whole of the bonded indebtedness, have been concluded for terms of 18 and 25 years respectively with the Toronto Railway Company and the Toronto Electric Light Company. It is obvious, therefore, that the company's position is assured. The interest on the bonds is covered, and the company is in sight of a handsome surplus for the common stock.

The Kakabeka Falls, on the Kaministiquia River, are being utilised for the supply of power to Fort William and Port Arthur. It was expected at the time of my visit that the company, which

takes its name from the river, would have 10,000 horse-power ready for delivery in the middle of the present year, and I have no doubt that these expectations have been realised. The power will be used by the huge elevators I have described in a previous chapter, by the Ogilvie Flour Mills and the Canadian General Electric Company, as well as for the lighting of the streets. Arrangements have been made for the supply of power to the Canadian Pacific Railway Company and the Canadian Northern Railway. A dam is now being built by the company, so that altogether a supply of 30,000 horse-power will be available as the requirements of this wonderfully promising district increase.

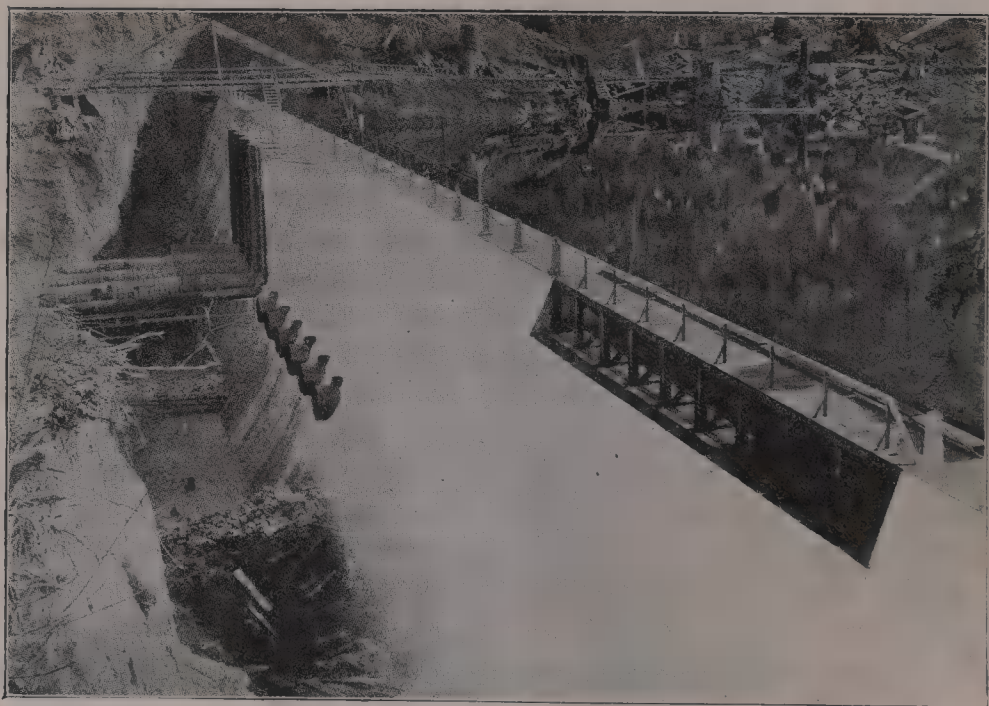
Then, again, between Lake Superior and Hudson's Bay there are also known to be tremendous water powers only waiting to be utilised for the production of energy; and, journeying westward, there are many water powers available on the Lake of the Woods. Some of these are being utilised, and others will no doubt be harnessed as time goes on.

At Winnipeg there are extensive water powers available, which have proved of immense service for running the light street railways of this thriving "gateway of the West." When the tramway system was first constructed it was worked by electricity generated by steam, but recently hydraulic electric power has been brought in from the falls on the Winnipeg River. These works have been constructed by the Winnipeg Street Railway Company, and the company has now a practical monopoly in the city for the supply of lighting and power. But there has been some discussion whether this monopoly will not be threatened. The municipal authorities have been considering whether they will not undertake the supply of power themselves, but from my personal knowledge of the many existing public requirements which have yet to be met, I hesitate to believe that the corporation will go to the immense expense of duplicating an existing system.

At the present time there can be no question that all the requirements of the city are being adequately met, and I am certain that the municipal credit of the city would greatly suffer if attempts were made to borrow money for the purpose of competing with a private enterprise in which a very large sum of English capital is involved. It must not be forgotten that Canada will for years require monetary assistance for its industrial enterprises. This it will have some difficulty in obtaining if the rage for municipal ownership threatens existing commercial concerns.

Further west still, in British Columbia, the very configuration of the country suggests unlimited water powers. Many of these, it is true, are at present inaccessible, but as time goes on they

will be utilised as the requirements of the country render further cheap power a necessity. At the present time the mines of British Columbia are, to some extent, allowed to overshadow the great manufacturing future before this rich and highly-favoured portion of the continent, especially as regards lumber. There are, however, three water-power companies being developed. One is called, I believe, the Cascade Company, and is situated on the Kettle River; the second is the West Kootenay Light and Power Company. These two companies supply power mainly for mining and smelting and lighting the

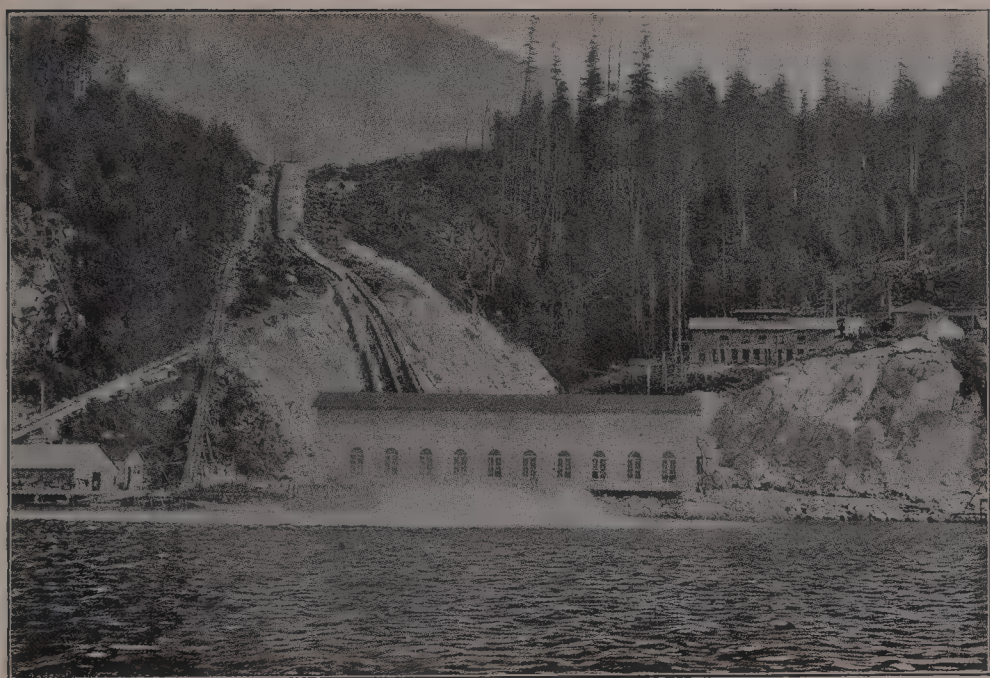


THE TROUT LAKE DAM OF THE VANCOUVER POWER COMPANY, LIMITED,
BRITISH COLUMBIA.

mining villages. The West Kootenay has, for some time past, been supplying about 5,000 horse-power, and is now ready to supply up to 24,000 horse-power as the demand develops.

Possibly at the present time a portion of this power is being supplied to the smelters at Greenwood, Grand Forks, Rossland and Nelson, and is being used by many of the mines, both in the Boundary and the Rossland districts. Probably, also, several of the towns have the power for lighting purposes, for the district served by the West Kootenay and Cascade companies is very large and is rapidly increasing in importance. The third,

and the most important, development is that of the Vancouver Power Company, at Buntzen, near Vancouver. This company is a subsidiary of the British Columbia Electric. The development is scientifically a very interesting one, and it necessitates the cutting of a tunnel between two lakes. This tunnel is in solid granite from end to end, is $2\frac{1}{2}$ miles long, passes under 3,000 feet of mountain, and is 9 feet high and 9 feet wide. The water of the great Lake Coquitlam is thus let in to the smaller Lake Buntzen, with a 32 feet decline. Lake Buntzen acts as a reservoir, and from thence the water is led through an immense masonry



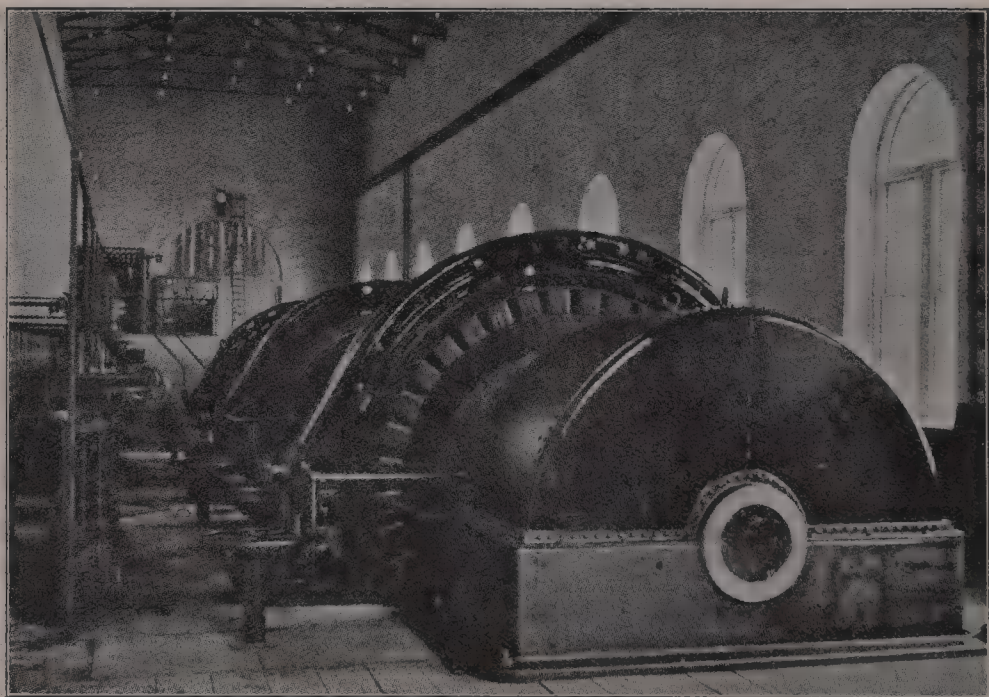
THE GENERATING STATION AND PIPE LINE OF THE VANCOUVER
POWER COMPANY, LIMITED.

dam and steel riveted pipes to the turbines, with a head of 418 feet. The present construction is made to develop a maximum load of about 40,000 horse-power, of which about 15,000 are now being developed and sold.

I come now to the beautiful city of Vancouver, on the Pacific Coast. All the gifts of the gods appear to have been showered on this delightful locality; and be it said, to the credit of the inhabitants, they have not been slow to utilise the great advantages which a magnificent situation and a perfect climate have conferred. It does not require any

imagination to see that Vancouver is designed ultimately to be the great rival of the new San Francisco for the Pacific trade.

For the moment, as this chapter is dealing with the water powers of the country, it will suffice to say that an important element in the industrial development of the city has been the utilisation of the water powers which are within economic distance. These powers have been developed by the Vancouver Power Company and the British Columbia Electric Railways in a thoroughly scientific manner. At the present time not only power for the splendid system of light railways which covers the city in all directions and the lighting of the city is supplied by



INTERIOR OF THE GENERATING STATION OF THE VANCOUVER POWER COMPANY, LIMITED.

these companies, but the local industries of the whole district have largely benefited by the cheap power rendered available.

The securities of the British Columbia Electric and the Vancouver Power Companies are largely held in this country, and it may be some satisfaction to the holders to learn that their money has been used to such good advantage. Personally, I formed the view that in future water-power securities will be a very favourite form of investment, as they provide the maximum of security with the minimum of risk. In addition to this, it is well known that the larger the output the cheaper the cost. This opens up very great possibilities for future heavy profits.

CONCLUSIONS :

That Canada's Water Powers are unparalleled.

That they give the Dominion an enormously economic industrial advantage.

That they provide the cheapest means of generating electricity.

That they are widely distributed and available for all important centres.

That the cost of production is thereby greatly reduced.

That supply companies already in the field are doing splendid work.

That Canadian water-power securities are likely to prove a popular investment in this country.

CHAPTER V.

A GREAT CANADIAN AGRICULTURAL ENGINEERING ENTERPRISE.

AN ENGINEERING ORGANISATION OF WORLD-WIDE REPUTE.—
ONE OF THE LARGEST CONCERNS OF ITS KIND IN THE WORLD.
—THE MASSEY-HARRIS COMPANY'S WORKS AT BRANTFORD
AND TORONTO.—A STANDARD BINDER.—CONCERNING HAR-
VESTERS.—THE MASSEY-HARRIS CREAM SEPARATOR.—FACTS
ABOUT BUTTER-FAT.—“ VERITY ” PLOUGHS.

IN view of the world-wide reputation of our great agricultural implement and machinery manufacturing establishments at Ipswich, Gainsborough, Bedford, Lincoln, Leeds, Shrewsbury, Grantham, Banbury, Newark, Manchester, and elsewhere throughout the English provinces, we might be excused for thinking that we had something approaching to a monopoly in the supply of implements to agriculturists the world over. Any conclusion of this sort, however, would be based on an insufficiency of information which a visit to Canada certainly emphasises. Canadian engineering enterprise has to a very complete extent embraced agriculture within the scope of its operations, with the result that numerous extensive agricultural engineering factories are to be found in Eastern Canada, and may soon be found in Western Canada as well. The largest undertaking of the kind, however, is associated with the name of the Massey-Harris Company, Limited, whose headquarters are at Toronto, but whose ramifications extend not only throughout the whole of the Dominion of Canada, but practically throughout the whole world where agricultural operations are conducted on modern and scientific principles.

It was my privilege to visit the Toronto works of the Massey-Harris Company, and, although no engineering expert myself,

the results of my visit created a lasting impression upon my mind. Some idea of the extent of the Massey-Harris Company's operations may be gleaned from the fact that the establishment which I visited is capable of an output of as many as 60 binders, from 30 to 40 drills, from 25 to 30 rakes, from 30 to 40 cultivators, and from 30 to 40 disc hoes *per diem*—or, in other words, from 300 to 400 agricultural implements and machines of one kind and another per day, finished, painted and ready to leave the shops. At Brantford it is quite a matter of common occurrence for 40 binders and 90 mowers to be found in course of construction daily.

Altogether, with the 900 hands who are employed in one factory, the 450 employed in another, the 450 again employed in still another, and so on, there are, in the aggregate, about 3,000 men employed in the workshops alone of the Massey-Harris Company, and this, be it understood, is in addition to some 1,000 men employed in the sales departments throughout Ontario, 500 similarly employed in Quebec, some 700 in the Western Division of Canada, and 500 in the United States. The company, moreover, have agencies all over Europe, Australia and South Africa, and they make the claim to be the largest manufacturers of agricultural implements under the British flag, and, with the exception of one firm in the United States, the largest makers of such mechanisms in the world.

The company's storage buildings at the Toronto works, which I inspected, represented a floor area of no less than ten acres, and the equipment as a whole was on the most complete modern scale. The works, too, were situated most conveniently as regards railway facilities, and I was not surprised to learn that of the total output of the establishment quite 40 per cent. was sent abroad, Australia being the biggest customer outside of Canada. Moreover, at the time of my visit very extensive enlargements were in course of progress at Toronto, so that nothing approaching to finality has yet been reached by the company, although, as they are now, its industrial resources are calculated to astonish even those who are well acquainted with the large agricultural engineering establishments which we have at home. It is worth mentioning, also, that the company keep a large staff continually employed in work of an experimental character, for absolute finality does not seem to enter into its calculations.

The Massey-Harris undertaking, I should mention, is a limited company, but its stock is not quoted on the Exchanges, all of it being held by its founders' representatives and its employees, the heads of departments and foremen being encouraged to hold stock, which some sixty of them do, consequently having a stake

in the concern. The business was really founded by Mr. Hart A. Massey, and, as it presents itself to-day, comprises an amalgamation of four old-established concerns. Amongst its founders should be mentioned the names of Mr. Alzon Harris, Mr. Peter Patterson and Mr. Jesse Wisner, all of whom are now deceased, the responsible conduct of the business being in the hands of Mr. C. D. Massey, the eldest son of Mr. Hart A. Massey, whose name I have already mentioned. The president and general manager is Mr. Senator Melvin Jones, and the vice-president and assistant general manager Mr. J. Kerr Osborne. Other members of the board of directors are Messrs. J. N. Sheristone, J. H. Housser and George H. Watson, Mr. Housser acting also as secretary.

It will be understood, then, that the ramifications of the Massey-Harris Company, Limited, are of the most comprehensive character. The head offices, as I have said, are at Toronto, in which city there are also branch offices, the latter dealing with the detail business for the province of Ontario. There are also branch offices for the maritime territories at St. John, New Brunswick ; for the province of Quebec at Montreal ; for Manitoba at Winnipeg ; for Saskatchewan at Regina ; for Alberta at Calgary ; and for British Columbia at Victoria, Vancouver. The company's factories are situated at Toronto, Brantford and Woodstock, and it was the factory at Toronto which I personally visited.

Amongst the harvesting machinery, which figures most prominently in the Massey-Harris productions, perhaps I might select for brief specific notice their No. 4 binder, which is well known to agriculturists throughout the grain-growing world as something of a standard implement with which to a great extent other binders are compared. It is claimed unhesitatingly that no other binder works as well or wears as well, and it is built to handle with equal efficiency all kinds and conditions of grain. It does not need an engineering specialist to see that this machine is strongly built, from the ground up. Its design will immediately commend itself to the practical eye, and the materials out of which it is fashioned are, like Cæsar's wife, beyond suspicion, being made to withstand the wear and tear of harvest field work on the roughest and most refractory ground. The driving mechanism in these binders is made almost entirely of steel and malleable iron, and every structural detail in which steel can be suitably used is built of that material. Malleable iron comes in as a useful second, and the result of the whole is a rigid combination, which all Canadian agriculturists agree is the best possible arrangement to withstand hard and constant service.

The transmission of power in a binder which is to do tough work is necessarily a detail of importance, and in the case of the Massey-Harris binder it takes the form of a link-belt, which

conveys the power from the broad-faced road-wheel to the main shaft. Much, of course, depends on the main frame of a binder, and strength and rigidity are stamped, if I may so express it, on the face of the frame of the No. 4 binder. Of the details, such as the floating elevator, the reel, the cutting apparatus and the like, I need hardly say much in a general chapter of this kind, even if I were competent, as an engineer, to deal with the niceties of detail which of necessity insinuate themselves into the complicated mechanisms of modern agricultural implements; but I did not fail to be impressed with the apparent ease with which the Massey-Harris binder can be taken to pieces and put together again. This is an important consideration, not only for transport purposes, but for the sake of the farmer, whose location is perhaps far remote from an engineering establishment, or even a village mechanic's shop. I might add that roller and ball bearings are used wherever possible, in order to lengthen the life of the machine by reducing wear and tear to a minimum, and the Massey-Harris people make a point of treating no detail lightly, even if it receive scant consideration at the hands of other makers.

As a supplementary contrivance to the binder, the Massey-Harris sheaf carrier is a labour-saving device of first importance. Strongly built and not given to sagging when filled with sheaves, the teeth of the carrier are so shaped as to hold the bundles securely in place, and when tripped off to discharge them gently, with a downward and backward motion which does not shell the grain—an important consideration this. It trips by an easy pressure of the driver's foot, making a clean job, and the trip locks itself again after dumping, while the mechanism has intelligence enough—if I may so express it—to trip automatically if an obstacle be met with on the way.

Briefly summing up, then: in the Massey-Harris binder, which represents the best practice in its own particular field of Canadian agricultural implement manufacture, we find that the employment of steel for the main frame and the principal structural details ensures strength combined with lightness, and the main frame is supplementarily strengthened by being amply trussed, braced and otherwise reinforced, preventing twisting, bending or buckling, and promoting a free running of the working parts, as well as a light draft, which is of importance under any circumstances, but especially where rough ground has to be covered. Then its possession of a floating elevator, working on automatic principles, enables it to successfully handle practically all kinds of grain crop. The reel is manipulated by a one-hand lever for all its adjustments; the knotter is just what such a knotter should be; the chain tightener, also acting automatically, maintains the chain at its proper tension; and, leaving the other

mechanical details to those more competent to deal with them, I would, as a layman, just add—and my views seem to be confirmed by agricultural opinion throughout the Colony—that the Massey-Harris binder reaches high-water mark, not only so far as it relates to Canadian production, but so far as agricultural machinery manufacture throughout the world is concerned.

A significant indication of the practical efficiency of the Massey-Harris binder is that it is in use not only in Canada, but in the United States, Europe, Asia, Africa and Australasia, and it is a matter upon which our Colonial engineers may fairly congratulate themselves that an implement of Canadian manufacture should have won a place of ascendancy in competition with the products of the most eminent agricultural engineers throughout the world.

Another typical implement of Canadian manufacture is the Massey-Harris corn harvester, which is designed to cut and bind the corn in the only way in which it can be successfully accomplished—that is, while the stalks are upright or vertical. In practice the corn is first cut, and then, while still in an upright position, it is carried along by three double rows of endless chain until it is ultimately bound into bundles. The machine handles all conditions of crop successfully and economically, and is not only substantially built, but is structurally reliable and thoroughly dependable in its working arrangements.

Steel enters largely into the scheme of its construction, contributing both to the symmetry of the design and the strength of the implement as a whole. The corn can be cut at distances varying from 3 inches to 18 inches from the ground, this being regulated by means of an independent worm-gear, and there is ample room for the heaviest crop to pass up to the binding attachment without the ears being injured. The provision of roller-bearings makes the work easy for the horses, and the handy levers make it easy for the driver. As a harvesting machine it is powerful and built for strenuous work, and the binder is practically the same as that already described, binding every sheaf in the right way and delivering it out of the track of the horses.

Considerations of space prevent my dealing with the Massey-Harris mowers, hay-rakes, hay-loaders, hoe-drills, grain-drills, cultivators, disc-harrows, and many other representative types of agricultural implements and machines which are turned out at the Massey-Harris Company's works. But, broadly speaking, these are admittedly high-grade productions, designed and manufactured on the best principles, and holding the highest of reputations in agricultural estimation throughout the Dominion, as well as in the United States and in British Colonies in different parts of the world.

Another leading speciality of the works is the Massey-Harris cream separator, which has become a recognised factor in the dairy industry of Canada. The cream separator is, of course, as yet an invention of only comparatively recent date. It is, indeed, little more than fifteen years since the original idea of separating cream from milk by the employment of centrifugal force was brought forward, and it was some time after that period that the cream separator became a commercial entity in connection with the agricultural and dairy industry. Nevertheless, no machine of recent introduction has proved of more consequence to the dairy farmer than this latter-day mechanical introduction.

Cream separators, of course, take numerous forms, and the details of their construction vary in nearly every case. Consequently, the dairy farmer has to discriminate considerably in his selection. The Massey-Harris separator has, however, fully established itself on the grounds of mechanical and practical efficiency, and there is probably no cream separator in the market on the other side of the Atlantic which is so extensively in use as the Massey-Harris. In dairy practice, as is now well known, the advantages of the mechanical separation of cream from milk over the old-fashioned system of pan-creaming are numerous. For one thing, by the mechanical method the loss of fat in skim milk is reduced to a minimum, and a better and more uniform quality of cream is produced. It moreover ensures purity in the product, is calculated to remove disease germs, and the keeping qualities of the resulting butter are increased. The thickness of the cream, too, can be readily regulated, and the skim milk is found to be in better condition for feeding purposes where the separator is used than is the case in pan-creaming. Then another consideration is the fact that mechanical separation effects a saving both in the cost of utensils employed and the amount of space required for their accommodation.

Objection has been urged against the separator on the ground of its comparatively heavy first cost and the labour of operating and cleaning the machine ; but when it is remembered that the increased product derived from the saving in loss of fat in skim milk amounts to about one to two pounds per year for each cow, it will be understood that the separator soon pays for itself, and converts dairy work from a kind of industrial drudgery to a source of profit and satisfaction. The ideal cream separator should, therefore, possess elements of cheapness and durability, strength and simplicity of construction ; it should be of maximum capacity, and require a minimum of power to operate it ; it should be easily accessible for cleaning, and be free from defects in its mechanism. It is the possession of such advantageous

points as these which has placed the Massey-Harris separator in the favourable position it occupies in the market.

The evolution of the Massey-Harris separator forms quite an interesting chapter in the history of dairy engineering. When the company decided to add a cream separator department to their business their first task was to examine and test every cream separator made in Canada or any other country, selecting the good points of the various machines which commended themselves and rejecting the bad ones, and ultimately combining the greatest number of the former into one mechanism, which, when completed, represented the most perfect combination of effective mechanism that experience and mechanical ingenuity could devise. When this onerous task was accomplished, a completely equipped plant of modern automatic machinery was laid down for the manufacture of cream separators.

Many of the machines which now find places in the company's separator shops are the first of their kind ever produced, and it was pointed out to me that it was only by the use of such machinery that the various parts of the separator can be made interchangeable, and of a kind to ensure perfect and smooth working. This is essential, because, however well a cream separator may look, if the bowl, for example, is not perfectly balanced, or if the bearing be a trifle out of line here, or the gears do not mesh properly there, the only results will be imperfect separation, hard running and short life for the machine.

It is possible that some makers of separators turn out the machines in larger numbers than do the Massey-Harris Company, but the latter rather pride themselves than otherwise on their determination never to rush their work, and to subject every part to the most careful finish and the most rigid tests. "We will," they told me, "bring our experience, our knowledge, our capital, our organisation, and everything else we can to lower cost and distribute more cheaply, and of all this we will give our customers the benefit; but we will not lower our standard of quality. Our machines will be the best; our prices will be fair." Such is the policy which characterises the cream separator department of the Massey-Harris Company's business.

I have already mentioned that the greatest saving effected by the use of a reliable cream separator is in butter-fat. But the economy does not rest there alone. More butter-fat makes more butter, and better butter. It will keep longer, and commands a higher price in the market. With a good separator a better and more uniform quality of cream is produced, and this commands a better price in the market on account of its purity and the absence of disease germs. Then, again, the skim milk is warm and of more value, as I have already mentioned, for feeding

purposes. Besides, instead of letting the milk, as in pan-creaming, stand for hours while the cream rises, gathering germs and dust the while, the whole of the milk is separated and disposed of in half an hour.

The newer system amounts, in fact, to getting butter practically direct from the cow. Then there is no waste ; you get all there is to get right away—all the milk, all the cream, all the butter—and you save money all the time. Some of the figures placed before me were startling to a non-expert in dairy practice. But it was made obvious even to me that the farmer owning a herd of, say, ten cows can save, with a reliable cream separator, *plus* cleanly and careful management, enough in the course of one year to pay for one or two good modern separators.

This butter-fat of which I have spoken, and which is the principal element to be considered in butter-making, takes the form of globules. Some are large, others small, and some very small, and it is these last which are the richest in the milk from good cows. Any separator which knows its business at all can save the big globules, but only the best separators are able to separate and save the small rich globules, which are of such importance in the dairy product. It is in this particular that the Massey-Harris separator excels. It saves practically all the butter-fat, while the milk passes through the separator at the same temperature as it comes from the cow. It is only fair, however, to say that such ideal conditions of butter production are seldom realised in actual practice, and the true merit of a separator lies, therefore, in its capacity to skim to the best and most economical advantage at various temperatures.

It is hardly necessary for me in such a volume as this to enter into a detailed description of the construction and mechanism of the Massey-Harris cream separator. It will be sufficient if I say that the frame of the separator is its foundation. It is moulded in the Massey-Harris foundry from a selected mixture of iron, and is planed, bored and otherwise prepared by special plant, and in such a manner as to ensure absolute accuracy of fit and detail. Ball bearings are used wherever practicable, and the other bearings are nearly all fitted with renewable bronze bushes. The shafts are extra heavy and of special steel, and have long bearings to ensure length of wear and service. The rocker bearing for the bowl spindle—one of the most important features of any separator—is claimed in the case of the Massey-Harris to be superior to any other in use, and the skimmer or bowl is accurately balanced and precise in all its adjustments.

The Massey-Harris Company, Limited, are also the sole sales' agents of the " Verity " Plough Company, Limited, whose productions in high-grade ploughs, scufflers, land-rollers, horse-

hoes, sowers, &c., are familiar to agriculturists in every civilised country. The "Verity" ploughs are claimed to have been awarded more prizes and medals at plough-matches all the world over than any other make, and the "Verity" plough plant at Brantford is perhaps the finest in the world. Brantford is a prosperous industrial town in the province of Ontario, and has a population of something over 16,000 inhabitants. The "Verity" Plough Works necessarily constitute virtually the backbone of the town's material prosperity. They are of substantial construction, and are disposed over the large area of ground which they cover on the most modern lines. They comprise an extensive foundry, steel plant, grinding and polishing shops, finishing shops, wood-working shops, a large coke and sand house, and extensive stores, warehouses and offices, and are conveniently situated with regard to railway transport facilities.

On the whole, therefore, what I saw and learnt during my visit to the Massey-Harris premises—of which my description has been, admittedly, of the most cursory character—constituted a liberal education in what Canada can do in the way of the manufacture of agricultural and dairy implements and machinery on a large commercial scale. The inspection of such an establishment—only one of several belonging to the same undertaking—opens one's eyes to the potentialities of Colonial engineering enterprise, which we in the Old Country have too long regarded as being wholly subservient to British engineering. In short, Canada has little need now to take points from the Old Country. So far as the particular types of machines I have mentioned are concerned, the truth seems, if anything, to be rather the other way about.

CONCLUSIONS :

That Canada is in a position to compete against all comers in Europe and America with regard to Agricultural and Dairy Machinery and Implements.

That the Massey-Harris Company is a splendidly organised and remarkably productive concern—the largest, with probably one exception, in the world.

That the Massey-Harris No. 4 Binder is a standard machine with which all competing implements of the kind should be compared.

That the Massey-Harris Cream Separator is *facile princeps* the leading article of the kind in cosmopolitan dairy engineering.

SECTION VIII.

**CANADIAN LAND
ENTERPRISES.**

CHAPTER I.

THE HUDSON'S BAY COMPANY.

LAND ONE OF CANADA'S GREATEST ASSETS.—A DIP INTO HISTORY.

—THE HUDSON'S BAY COMPANY'S LANDS.—A PRODIGIOUS LANDOWNERSHIP.—VALUE IN TOWN SITES.—A REASONABLE ESTIMATE.—THE COMPANY'S FUR AND TRADING INTERESTS.—DIVIDENDS AND THE FUTURE.—THE FINANCIAL POSITION.—WILL LAND SALES INCREASE?—LORD STRATHCONA'S VIEWS.

LAND is necessarily one of Canada's greatest and best possible assets. Its land area represents about half a great continent. According to the last official returns, those for the Census of 1901, the total area of Canada amounts to 3,228,903 square miles—an estimate which, probably, for a matter of half a million square miles or so, may well be a little bit out on the conservative side. But taking it as we have it, though we have more than 3,000,000 square miles of land, the greater proportion of which is available for some means of development and settlement, the official calculation as to population for the present being that for the whole of Canada, I believe it amounts to the equivalent of only 1·7 per square mile! What does all this prodigious field for capital and enterprise mean, even supposing we only take a third of the total official reckoning? I do not propose to answer that conundrum, but I submit it as a fair subject for reflection and consideration to the home investor.

To deal with Canada's land interests and possibilities in an exhaustive spirit would be a Herculean task from which I, for one, would unhesitatingly shrink. I propose to limit my survey in this particular to the interests of its most historic and, at the same time, its greatest landowner—the Hudson's Bay Company—and to a few of the land companies in which British capital is largely interested. It was, of course, impossible for me to inspect the vast territories owned by these companies, and I had, therefore, to content myself with such information as I could glean during an extensive tour in the West. As is only right and proper, I purpose referring in the first instance to the

Hudson's Bay Company. All I saw and heard concerning the rush of immigrants and the rapidity with which the company's land is being taken up went to prove—if a fact so manifest needed proof—that the company's prosperity is assured as well as great. As the stream of new settlers flows further afield the fertile and inviting lands of the company are in growing request—as the last return of sales and cash receipts has strikingly shown. The following particulars concerning the company's position and prospects will doubtless be of interest to the general public, as well as to shareholders, who have reason for self-congratulation on their good fortune.

In 1903 the present £10 shares of the Hudson's Bay Company could have been bought for £33. The same shares can now (June, 1907) be sold in the neighbourhood of £90. Ten years hence who can say what will be their value if the advance in Canadian prosperity continues, as I have every confidence will be the case? Many readers of *The Financier* have asked how the present market valuation of the shares is arrived at. The calculation is a very simple one, and conservative withal, the allowance made for "possibilities" being extremely modest. But, in order to conduce to a clear understanding of the position, as Addison would have remarked, it is necessary to refresh the memory by going over a certain amount of more or less familiar ground.

My readers need not tremble. I am not going back to the days of the Stuarts, but merely to 1870, when the company surrendered its territorial rights to the Government. It then received, in addition to £300,000 cash, the right to select a block of land adjoining each of its stations, and for fifty years from 1870—that is to say, until 1920—it is permitted to retain in any township or district within the Fertile Belt, in which land is set out for settlement, sections not exceeding one-twentieth part of the land so set out. The Fertile Belt is approximately 1,000 miles from east to west and from 300 to 400 miles from north to south. Its boundaries, officially defined, are as follows:—On the south the United States boundary; on the north the northern branch of the Saskatchewan River; on the east Lake Winnipeg, the Lake of the Woods and the waters connecting them; on the west the Rocky Mountains. The rights of the Hudson's Bay Company materialise as the country is surveyed by the Government and the land is brought under settlement.

A system of survey and subdivision was adopted which has been uniformly applied over the whole of the country coming under the category referred to. A township is the survey unit, and consists of a square block containing 36 square miles. This is divided into 36 sections of one mile square, equal to 640 acres each. Taking a township, therefore, the mile sections are

numbered 1 to 36, beginning at the bottom right-hand corner and proceeding from right to left along the sections in the bottom or most southern row. Then the next row above is numbered from left to right, and so on alternately, until the top, or northern, right-hand section is No. 36. In every township this system is observed, and the company is allotted Nos. 8 and 26 of these mile sections. I also deal with this section of township subdivision in a subsequent Immigration chapter.

The result is, that, as fast as the country is surveyed and the survey duly registered at Ottawa, the company becomes at once entitled to take up and dispose of these particular portions of the new townships. Or, of course, they are entitled to keep them in reserve, and either use them or not at their convenience. It will therefore be noticed that the value of the company's sections depends largely upon the way in which the township boundaries happen to fall in relation to the land. Also, until the new country is opened up it is impossible to tell which sections, if any, will become valuable as town lots. On the average, however, it is clear that about one-twentieth, more or less, of the land on which the towns are built will belong to the company. In considering the choice of selection thus afforded to the settler it must be borne in mind that the area from which he can choose may be described as nearly as large as Europe, excluding Russia.

The company is entitled in all to 7,000,000 acres of land in the Fertile Belt, the whole of which will be vested in it within the next two years. Up to date it has sold 1,350,000 acres, leaving 5,650,000 acres to be dealt with. As I am proceeding on a conservative basis, I knock off the odd 650,000 acres for bad and worthless land, although this figure is regarded by good judges as very much over the mark. This leaves 5,000,000 acres of good land, for which the minimum price asked by the company is 10 dollars, or £2 per acre. Thus we have a sum of £10,000,000 as the value of the company's lands within the Fertile Belt. The capital, I may recall *en passant*, is £1,000,000, in shares of £10 each.

I do not attach an exaggerated value to the company's town sites. Originally the Hudson's Bay Company held about 50,000 acres of selected town sites within the Fertile Belt, but that area has been greatly reduced, and probably does not amount to-day to more than 15,000 acres. But included in this are some of the finest sites within the Fertile Belt. Originally there were 3,000 acres in Portage la Prairie, 2,000 acres in Winnipeg, 2,500 acres in Qu'Appelle and 3,000 acres in Prince Albert, all of which are now important centres. The sales in the Winnipeg district have probably been considerable, and the Portage la Prairie and Qu'Appelle blocks have, it is reasonable to suppose,

been reduced. But the remaining blocks offer great potentialities, and among them will undoubtedly be found some of the most thriving towns of the Dominion in the future to which we are looking.

To-day the average value of this property is certainly not less than £100 per acre—some of it has been reckoned by our American cousins to be worth £4,000 per acre—and the valuation of the whole may be modestly set down at £1,500,000. The most valuable 1,000 acres are those which are situated within the present limits of Edmonton, while in the vicinity of that town the company holds a further 1,000 acres, which will, in all probability, be built over in the near future. However, as I said before, I do not intend to strain at these town sites. The books of the company attach no value to the 200,000 acres or so of trading posts on the Mackenzie River and in Labrador, although some of these will undoubtedly acquire importance as Hudson's Bay, the natural outlet for the grain of the North-West, is opened to navigation.

Added to the £10,000,000 of farm lands there are now £1,500,000 of town sites, or a total of £11,500,000. Then there is the fur and trading business, the profits from which stood in the last balance-sheet at £192,000. Here one finds a good deal of pessimism current. A certain firm, it appears, is in keen competition with the company in its trading business. This rivalry, however, is no new thing. It has been going on for four years, and meanwhile the value of the company's stores has been steadily on the increase. I am inclined to share the view of the optimists, that the management, which in the past has been somewhat apathetic, has all to gain and nothing to lose by this healthy stimulus. The grand total, therefore, is £11,692,000, or considerably in excess of the current market capitalisation.

But in this estimate no account has been taken of the dividends actually paid, or of the future. The former are matters of history. As to the value which may be placed upon the company's future operations, I am safe, I think, in contenting myself with recording the opinion of those who have studied conditions on the spot, and have had every opportunity of arriving at an accurate estimate. This is that by 1910—no later—the value of the company's lands will have risen to a minimum of £4 per acre, and that the value of its town sites will at least have doubled.

Holders of Hudson's Bays need not be afraid of having the value of their security suddenly depreciated by fresh issues of capital. It is provided in the supplemental charter that 1,500,000 acres shall be reserved as security against capital. The proceeds of the balance of land sold are to be paid over to the shareholders,

so that from time to time repayments of capital will be made, until the whole has been returned to the proprietors. The capital originally stood at £2,000,000, but was reduced in 1870 to £1,700,000, and since then to £1,000,000, by the following returns of capital :—June, 1882, £2 per share ; June, 1883, £1 ; January, 1885, £1 ; July, 1903, £2 ; and July, 1904, £1 per share.

Although the charter of 1893 declares the capital to be 100,000 shares of £13 each, the Company has been legally advised that there is no liability of any sort on the shares, even in the event of liquidation. It is not generally known that under the supplementary charter of 1892 any shareholder who so desires may duplicate his present Ordinary shares into Preferred and Deferred. This would form the basis of the conversion scheme, if ever the Company should be induced to adopt such a measure. Pressure is continually being brought upon the board to induce them to recommend a scheme of conversion, but hitherto they have not thought it necessary to do so.

During the year ended March 31st last the proceeds from sales of land, as compared with the previous two years, were as follow :—

| | | 1906-7. | 1905-6. | 1904-5. |
|-------------------|-------|---------|---------|---------|
| | | £ | £ | £ |
| Deferred payments | .. | 334,300 | 401,400 | 170,200 |
| Cash sales | .. .. | 328,700 | 297,900 | 236,100 |

The report to June 30th made a brilliant showing. The trading profit amounted to £190,207, as compared with £102,969 for 1904-5. After setting aside £25,000 to buildings account and £15,000 to irrigation expenditure, the balance of the land account was £222,035, as against £187,364. Adding this to the trading profit, an aggregate revenue was shown of £412,242, as compared with £290,333 for 1904-5. The amount brought in was £94,064, so that £506,306 remained to be dealt with. An interim dividend of 10s. per share was paid in January, 1906, and the final distribution in July was £3 10s., making £4, equal to 40 per cent., for 1905-6, against £2 18s., or 29 per cent., for 1904-5. The balance forward was £96,306. On account of 1906-7 £1 per share was paid in December.

The trading profits were the largest in the history of the Company, and the acreage of land sold had only once been exceeded, namely, in the boom year of 1902-3, when the Company disposed of 368,678 acres of farm lands at an average price of 5.65 dollars per acre. Since then the selling price has steadily increased, the average for 1905-6 having been 7.12 dollars, as compared with

6.17 dollars in 1904-5. In the current year, as already stated, the average will be much higher still, owing to the fact that the Company has fixed a reserve price of 10 dollars per acre on its lands remaining unsold.

I think it extremely unlikely that the advance in the minimum price of the Company's lands will result in a material diminution of sales during the current year. An important factor to be reckoned with is the steadily increasing influx of farmers from the United States. It pays a man to sell his farm in South Dakota for 40 dollars per acre and cross over the border into Canada, where he can get land as good or better at 10 dollars per acre. Further, it must be remembered that, owing to the growth of population in the United States, the exhaustion of long-cultivated lands there by wasteful methods, and the rapidly diminishing areas available for new settlement, the American farmer is by force of circumstances being gradually driven over the border line.

The soil of the Canadian wheat-belt is much more fertile than that of the United States. Four years ago the average production of the Saskatchewan Valley was 29 bushels per acre, while last year yields of 44 to 55 bushels per acre were not uncommon. Last year's average for Manitoba was 26 bushels, as compared with 15 bushels per acre for North Dakota and 14.2 bushels for Minnesota. Canadian wheat fetches a better price than American, and the Canadian farmer has the advantage of cheaper railway freights. Of the American immigrants, from all parts of the States, most have headed for the districts surrounding Edmonton, Battleford, Saskatoon, and other points on the lines of the Canadian Pacific and Canadian Northern railways, while others were bound for Saskatchewan. Many of these immigrants are possessed of considerable means.

At the meeting held in July, 1906, Lord Strathcona, the Governor of the Company, remarked that the board thought it just as well to restrict the sale of town lots, owing to the greater value they would very shortly attain. Notwithstanding the largely increased sales of land for the year, the large majority of the sales were to those who intended to occupy and cultivate the land, and not merely to speculate in it. He considered that the shops were being managed on proper lines, and deprecated any suggestion of reckless competition with other firms.

CONCLUSIONS :

That the Hudson's Bay Company is now asking a minimum price of £2 per acre for its lands.

That these lands are some of the best in the world, and are adapted for many other crops besides cereals.

CONCLUSIONS—*continued* :

That the lands alone are worth at least £10,000,000 at the rate mentioned.

That in 1910 the price will be nearer £4 per acre.

That the value of the company's town sites will by then have doubled.

CHAPTER II.

SOME OTHER REPRESENTATIVE CAN- ADIAN LAND COMPANIES.

THE CALGARY AND EDMONTON LAND COMPANY, LIMITED.—THE ADOPTION OF A CONSERVATIVE POLICY.—THE COMPANY'S LAND SALES OF THE PRESENT YEAR.—THE CANADIAN NORTHERN PRAIRIE LANDS COMPANY, LIMITED.—THE PRICES REALISED AT THE LAND SALES.—THE WESTERN CANADA LAND COMPANY, LIMITED. — THE SOUTHERN ALBERTA LAND COMPANY, LIMITED.—THE CANADA NORTH-WEST LAND COMPANY.

I HAVE already dealt with the extensive land settlement operations of the Hudson's Bay Company, and, in the railway section of this volume, with the extensive land resources of the Canadian Pacific Railway Company. I now, therefore, come to deal briefly with the ramifications and prospects of a few representative corporations from amongst the ever-increasing number of land companies, of varying degrees of importance and responsibility, which are from time to time being organised in different parts of the Dominion. Necessarily the land undertakings which attract most interest at the present time are those which concern themselves with the sale and settlement of land in North-Western Canada; and amongst those which have some special claim upon the interest of investors at home I may first particularise the Calgary and Edmonton Land Company, Limited.

This company took over the assets of a company of the same name in 1902, which included 859,479 acres of land in the Province of Alberta. There were two great blocks, one of which was mainly in the valley, whose boundaries may be roughly described as following the Willow Creek on the north and Kootanie River on the south. The northern block was a little west of Bowden, on the Calgary and Edmonton Railway.

From its first inception to date the company has had a career of continuous prosperity. Its success has followed upon the

uninterrupted development of North-Western Canada, and the only detriment to its operations has been a somewhat long-drawn-out dispute with the Dominion Government as to the selection of its land. In the first balance-sheet issued, for the year ending December 31st, 1902, we have a debit to capital of £241,510, in fully-paid shares, and outstanding debentures of £168,400. The land taken over is valued at £307,604 18s. 5d., from which is deducted a proportion of the instalments received in respect of land sales reserved for redemption of outlay, £18,926 6s. 6d., leaving a net asset for land of £288,678 11s. 11d. The instalments received in respect of sales amounted for the year to £31,949 19s. 3d., less proportion reserved, £18,926 6s. 6d., leaving a net amount of £13,023 12s. 9d. The average price on what the company call the "ordinary" sales worked out at 3.48 dollars, as compared with 3.02 dollars the previous year.

Such was the state of affairs at the end of the first year of operations. Naturally, there has been a great change in the money value of land in Alberta since that time. The nature of the company's title was such that it left the selection of land a matter for negotiation between the management and the Dominion Government. As a result, the Government made certain specific offers to the company, which, after due consideration, were refused. This, of course, implied a great responsibility on the part of the directors and their representative in Alberta. But, after what has been described as a very hard fight, the result justified their policy. A compromise was arrived at which was considered by the board to be of a very satisfactory nature. Another question which arose with the Government was that of taxation. Here, again, there was a good deal of tedious negotiation, but in the end the Government agreed to postpone for a certain number of years the liability to pay taxes on the land.

In the case of a corporation holding large areas of land in a country which is being rapidly settled, and where the sales in the course of a few years are likely to amount to a substantial percentage of the whole area of the grant, the annual proceeds of the sales can scarcely be expected to show a continuous increase for a lengthened period, inasmuch as there is less land to offer as the time approaches when the bulk of it is actually disposed of. Passing over the intervening period, and coming to the accounts for 1906, the ordinary sales, amounting in the year to approximately £89,800, work out at an average of 5.81 dollars per acre, a huge advance upon 1902, and a satisfactory one upon the prices realised in 1905, when the average was 5.07. The total of the sales, however, was slightly less than in 1905, though the net profit was naturally a good deal higher. The company is

now adopting a very conservative policy with respect to the alienation of the remainder of its estate. The management is fully alive to the significance of the developments which are taking place in the province, and they are in no hurry to dispose of land which it is ever increasingly obvious will in a very few years have a value far and away beyond any prices previously realised. So much for the agricultural land, its values and management.

Fortunately, however, for the shareholders in this company, there is an asset which may be said to have something more than a sporting value, entirely apart from agriculture, and not so directly dependent upon settlement. It was a moot point at one time whether the company's title extended to minerals, and the matter had to be legally established. Ultimately a decision was given in favour of the company, a decision which will probably mean the increase of assets by hundreds of thousands of pounds sterling. Acting upon local information, and upon the fact that on land adjacent to their own valuable coal-beds had been discovered, the directors have had a careful, although more or less rough, examination made of such portions of their land as seemed likely to be mineral-bearing. Reports have been received from an adequate authority of an extremely encouraging nature—so encouraging, indeed, that the question arose whether it would not be desirable to float a separate company for the purpose of exploiting the coal-bearing area. But the directors came to the conclusion that, although the information obtained pointed to great values in the way of commercial coal, the matter had not been advanced to such a point as to justify asking the public to subscribe capital for the specific purpose of establishing collieries.

For all that, the position is such that there can scarcely be a doubt as to the immense value of the coal-beds under the company's land, and the management will be prepared to proceed with the business in an adequate manner when the time comes for dealing with them. As is customary with Canadian land grants, the company and the Government own alternate sections over the locality in which the grant is situated. The Government are now selling some of their land under which there is actually known to be coal at a price somewhat lower than the company are prepared to accept for theirs, although there were recent cases where they had disposed of 370 acres at nearly 20 dollars per acre, and 9 acres at 40 dollars per acre. Considering that there is still nearly 160,000 acres of the company's land unsold, the possibilities of the aggregate mineral value of the property are almost staggering in their dimensions. A glance at the map of Alberta shows that a very moderate expenditure on railway building would bring any part of the company's estate into touch

with the Calgary and Edmonton line, and with the Canadian Pacific system. Which is another way of saying that, for a trifling outlay, any coal which becomes available could be distributed at a low cost to any part of North-West Canada, including Calgary, where it is more than likely very considerable industries will in a few years be built up.

The land sales of the company which have been effected this year gave the following results :—

AGRICULTURAL LAND.

January.—2,830 acres at 7 15 dollars.

February.—667 acres at 7.61 dollars.

March.—1,122 acres at 7.28 dollars.

April.—1,253 acres at 7.61 dollars.

MINERAL LAND.

March.—370 acres at about 20 dollars.

April.—160 acres at 40 dollars.

The dividend paid for 1906 was 2s. 6d. per share, and a further instalment of 7s. 6d. on capital account. There appears to be every prospect of all the capital being returned in cash concurrently with the maintenance of handsome dividends long before the realisation of all the assets in land and minerals.

I now come to deal with another very important land undertaking—that of the Canadian Northern Prairie Lands Company, Limited. Formed as recently as 1904, the *raison d'être* of this company was, and is, the handling of about 500,000 acres of land, bought out of the land grants of the Canadian Northern Railway Company of Canada. The issued capital is 300,000 shares of five dollars each. The lands thus acquired by the company by purchase from the railway are situated in the provinces of Saskatchewan, Manitoba and Alberta, and in the territory of Keewatin. The fertility of the Saskatchewan Valley, in which a large portion of this land is situated, is a household word in Canada, although it is a part of the West which at the end of last century had hardly become accessible, and was only known to a few solitary pioneers. Now this favoured region has a popularity with settlers equal to that of any part of the Dominion. It is well watered, the soil, as I have explained in detail elsewhere, is a deep black loam, and the winters are milder than in a great portion of the country further south. A portion of the company's lands are in close proximity to the important and rapidly-growing towns of Battleford, Prince Albert, Neepawa, Dauphin, Kansack, Humbolt, Saskatoon, Melfort and Swan River.

The price paid by the company for the 500,000 acres was 1,500,000 dollars, or at the rate of three dollars per acre. This

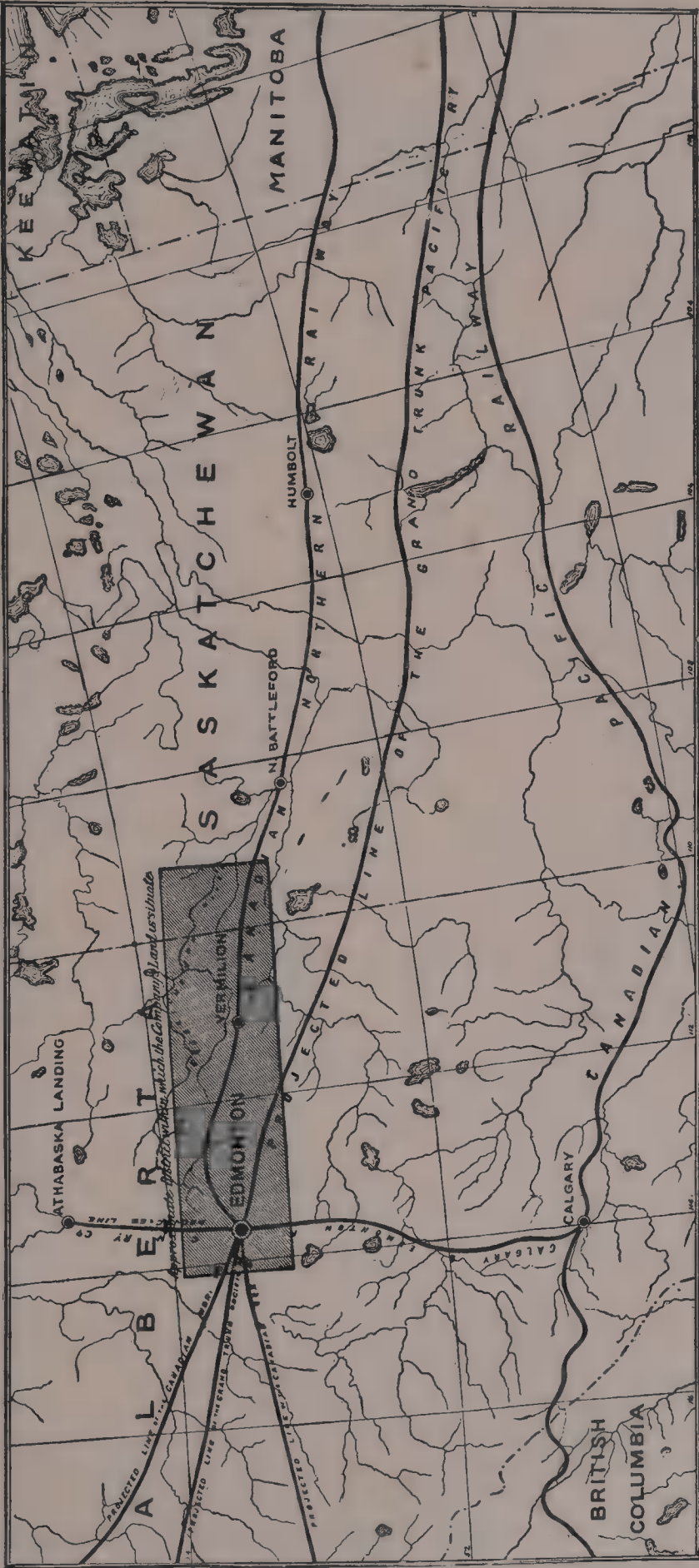
was remarkably cheap in view of the prices which the company has since realised by the following sales :—

| | | | | Acres. | Price per Acre. Dollars. |
|--------------|----|----|----|---------------------|--------------------------------|
| 1905—October | .. | .. | .. | 104 414 | .. |
| November | .. | .. | .. | 2,698 | 8.11 |
| December | .. | .. | .. | 1,568 | 8.51 |
| 1906—January | .. | .. | .. | 801 | 8.60 |
| March | .. | .. | .. | 102,178 | 7.02 |
| April .. | .. | .. | .. | 118,920 | 7.04 |
| May .. | .. | .. | .. | 320 | 8.75 |
| June .. | .. | .. | .. | 517 | 9.31 |
| July .. | .. | .. | .. | 1,467 | 9.43 |
| August | .. | .. | .. | 428 | 9.37 |
| September | .. | .. | .. | 2,347 | 9.46 |
| October | .. | .. | .. | 7,053 | 9.09 |
| November | .. | .. | .. | 1,286 | 9.50 |
| 1907—January | .. | .. | .. | 234 | 11.86 |
| February | .. | .. | .. | 479 | 11.00 |
| March | .. | .. | .. | 160 | 11.00 |
| | | | | <hr/> 344,870 <hr/> | |

The amount realised by the above sales totals up to 2,384,059 dollars. The policy of the company has been to invest the proceeds of these sales in mortgages on approved farms and lands, or, after the purchaser has paid up 20 per cent. on the purchase price, to leave the remainder in unpaid instalments on the land sold. The interest derived from these investments provides the company with sufficient income to maintain a dividend at the rate of 10 per cent. per annum.

In view of the steadily-increasing value of land, the company has decided to hold the balance for much higher prices, and to sell out in small lots at not under 11 dollars per acre. The shareholder is thus provided with an excellent investment, secured on real land mortgages, with prospects of an increase both in dividend and capital as a result of the sales of land at increasing prices. The above estimate is based upon the prosperous conditions which now obtain in Western Canada, and on the admitted fact that the number of desirable immigrants who are coming into Canada this year, and the numbers known to be coming, will give a further great stimulus to the land business in the Saskatchewan Valley. Moreover, the rise in the price of choice selections will be brought about considerably earlier than would otherwise have been the case, by the decision of the Government to throw open to *bona-fide* settlers at a low price a large acreage of land well distributed throughout the whole district.

As the characteristics of the country around Edmonton are touched upon in other chapters, and the town itself, its inception, its present condition and its brilliant prospects are also described elsewhere, there is little need to recapitulate on these heads in



MAP SHOWING THE APPROXIMATE DISTRICT WITHIN WHICH THE LAND OF THE WESTERN CANADA LAND COMPANY, LIMITED, IS SITUATED.

connection with the Western Canada Land Company, Limited. This company was formed in February, 1906, for the purpose of acquiring 500,000 acres of agricultural land belonging to the Canadian Pacific Railway Company. The capital of the company is £500,000 in 500,000 shares of £1 each, of which 450,000 shares have been issued. The lands form part of the Canadian Pacific Railway Company's land grant from the Dominion of Canada, which were selected for settlement purposes by the railway company. These lands are situated in the district of Edmonton, in the Saskatchewan Valley, Province of Alberta. The whole of this district is being rapidly opened up for settlement, and is already served by two existing railway companies, the Canadian Pacific and the Canadian Northern, together with their numerous extensions.

The Canadian Northern Railway brings this district into direct communication with Winnipeg and the great wheat market of the world. The main line of the Grand Trunk Pacific Railway, now in course of construction, will also pass through this district. This latter company has undertaken to build to the Pacific Coast, and this line, when constructed, will bring the district into closer touch with the markets of China and Japan. The valley of the North Saskatchewan is generally recognised as one of the best wheat-growing districts of Western Canada. The Government reports show that the land in this district is, as a general rule, undulating, well watered and of a good quality.

As is well known, there have often been rushes of population into districts where the fertility of the soil, long unsuspected, had suddenly acquired a reputation among farmers. Such movements were seen in several of the Western States of the Union, and in none more than Iowa, where the value of agricultural land jumped up from less than eight dollars in 1850 to about twice that figure in 1860, more than doubled itself before 1880, and had risen in 1900 to 53 dollars, or more than six times the value it possessed when first occupied by the white man, half a century before. It is not, therefore, unreasonable to suppose that history will repeat itself as regards the fertile belt of the Canadian West.

Owing to the necessity of getting the land inspected, in order to arrive at valuations, and the delay in obtaining titles from the Dominion Government, it was late in the season of 1906 before the Western Canada Land Company's agents were able to commence active operations, which, moreover, were prematurely stopped by reason of the almost unprecedentedly severe winter, and have been further delayed by the backward spring. During the season of 1907, it is anticipated that the rush of settlers into the Dominion will far exceed past records (Sir Wilfrid Laurier

recently estimated the newcomers this year at 300,000), and that the demand for agricultural land will be correspondingly great, especially by farmers from the United States, who, tempted by the high prices obtainable for their present holdings, are selling improved properties with the object of investing their profits in the purchase of land in Western Canada, the prospective value of which they are fully alive to.

Up to April 1907 the Western Canada Land Company had actually sold 38,752.18 acres for the sum of 336,688.03 dollars, an average of 8.70 dollars or say about 35s. an acre. As by far the greater part of the land will be sold on the instalment principle, carrying interest at the rate of 6 per cent. per annum, a further revenue will be derived from this source. One share at par represents an acre of fertile land at 4.55 dollars, or say about 18s. an acre; consequently a buyer at the present market price of 27s. 6d. is practically acquiring selected land at 6.25 dollars an acre, or 2.45 dollars under the price at which the land is selling to-day, plus 6 per cent. interest on deferred payments.

With a steady appreciation in land values it may reasonably be expected that higher prices will be obtained for the land, to say nothing of mineral rights and town sites, but it will be seen from the following table that if the property were disposed of at only the average price obtained to date, the return per share, exclusive of interest, would amount to approximately 38s.

| | | At exchange of \$4.85. | | Per Share of | |
|-------------------------|--------------|------------------------|-----------------|-----------------|--|
| | | | | 470,000 Shares. | |
| 500,000 acres if sold @ | \$7.50 .. | \$3,750,000 | — £773,000 .. | 32/11d. | |
| " | @ \$8.00 .. | \$4,000,000 | — £824,000 .. | 35/2d. | |
| " | @ \$8.50 .. | \$4,250,000 | — £876,000 .. | 37/4d. | |
| " | @ \$9.00 .. | \$4,500,000 | — £927,000 .. | 39/7d. | |
| " | @ \$9.50 .. | \$4,750,000 | — £979,000 .. | 41/9d. | |
| " | @ \$10.00 .. | \$5,000,000 | — £1,030,000 .. | 43/10d. | |

The scare raised by speculators for a rise in wheat, accompanied by the predictions of crop shortage this year, are, to say the least of it, altogether premature as regards the Dominion of Canada, and the statements made by Lord Strathcona, High Commissioner for the Dominion, the Hon. S. Fisher, Minister for Agriculture, and the Premier of Manitoba, effectually dispose of these groundless reports.

Just west of the important town of Medicine Hat, in Southern Alberta, there is a great tract of 390,573 acres, which has been acquired by the Southern Alberta Land Company, Limited. The land has a frontage to the main line of the Canadian Pacific Railway Company, and the Crow's Nest Pass branch of that company traverses the portion known as Block B, the southern part of the estate, so that the railway facilities are excellent. The land is held under an agreement with the Government, providing for the carrying out of an irrigation scheme affecting 25 per cent.

of the whole area. The agreement was only entered into in June last year, so that the company has as yet not advanced very far in the way of carrying out its objects. Looking, however, at the position of the property, and the success which has attended other irrigation operations in the West, the prospects appear to be distinctly good. An important part of the proposed business of the company is to be the carrying on of a large ranching concern, in the form of a subsidiary undertaking, called the Grand Forks Cattle Company, Limited. The working capital of the company is £100,000.

Mr. J. D. McGregor, of Brandon, Manitoba, has been appointed managing director in Canada. A survey party is already in the field, preparing plans for a scheme of irrigation under the supervision of Mr. Grace, an engineer who has had great experience of irrigation construction in the service of the Alberta Railway and Irrigation Company, as well as in the United States. These plans will subsequently be checked by the best consulting engineer available. Meantime, a beef contract is being profitably carried on, and Mr. McGregor is using part of the company's capital for further purchases of cattle, which, after the recent severe winter, can now be picked up cheap, and resold later at a profit.

The following statement shows the cost per acre of Southern Alberta land, including all vendors' and promotion profits, and estimated expenses of every kind for irrigating the tract contemplated. It will be seen that the figures work out at an average cost price of 5.87 dollars per acre, which may be considered extremely satisfactory in view of the price obtainable for irrigated lands :—

| | Dollars. |
|--|------------------|
| Purchase price as per prospectus £300,000, say | 1,500,000 |
| Net cost of 380,573 acres at \$1 per acre | 380,573 |
| Cost of irrigating 85,000 acres, tract A; cost of irrigating 50,000 to 75,000 acres, tract B (as per prospectus) .. | 1,000,000 |
| | <hr/> |
| | 2,880,573 |
| Less assets Grand Forks Cattle Company, estimated at .. | 557,679 |
| | <hr/> |
| Total cost of 380,573 acres, including the irrigation of 130,000 to 160,000 acres | <u>2,322,894</u> |

The Canada North-West Land Company, Limited, was incorporated originally in 1882, with a capital of £3,000,000, in 300,000 shares of £10 each. Only half of this sum was called up, and the capital was subsequently reduced to £1,500,000, the amount paid up. The company was formed for the purpose of taking over land belonging to the Canadian Pacific Railway Company, besides certain interests in the sites of all the towns and villages located during the construction and within one year of the completion of the railway from Winnipeg to the Pacific Coast, on the main line between Brandon, in Manitoba, and the

eastern boundary of British Columbia, with the intention of reselling the same.

The affairs of the company were for some years directed from London, and afterwards the head office was removed to Edinburgh, but in 1890 its headquarters were again established in London. In that year the capital was reduced by the repayment to the shareholders of 2s. 6d. per share, and in the following year a similar repayment was made, the shares being reduced to £4 15s. each. During the first ten years of the company's existence the profits from the sale of land and town lots were not sufficient to justify the payment of a dividend, but in 1892 1s. per share was declared on this account, and in the following year a further 1s. dividend was paid.

Canada was then passing through a period of depression, the company's affairs were not in a prosperous condition, a large amount of the share capital had passed from the English register to the Canadian register, and it was considered that the time had arrived when a reorganisation of the company should take place. Accordingly, a new company was incorporated by an Act of the Parliament of Canada in 1893, with a capital of 7,338,406.25 dollars, divided into 58,707½ Preferred shares of 100 dollars each and 58,707½ Common shares of 25 dollars each. These shares were issued to the shareholders of the English undertaking—which, of course, went into liquidation—in the proportion of one Preferred share and one Common share for every four shares of £4 15s. each of the old company. The Preferred shares were to rank for dividend up to 6 per cent. per annum before the Common shares could receive anything, and after 6 per cent. had been paid on the latter each class of stock was to rank *pari passu* in respect of any additional distribution of dividend.

The shareholders were not called upon to provide any additional capital, the reorganisation being dictated by considerations of administrative economy rather than financial necessity, and, in order to reduce the working expenses to the lowest figure consistent with effective administration, it was arranged that the affairs of the company in London should be conducted at the office of the Canadian Pacific Railway Company, with a London director to look after the interests of the English shareholders, and the office of Land Commissioner in Winnipeg undertaken by the Land Commissioner of the Railway Company in that city.

The new Canada North-West Land Company took over, as from December 31st, 1893, the assets of the English company, which included nearly two million acres of farm lands and certain interests in town sites between the town of Brandon and the Rocky Mountains. Under the Act of Incorporation the sum of

2.75 dollars at least had to be appropriated from the purchase price of each acre of agricultural land sold and paid for in cash during each year, to form a reserve fund for the purchase of Preferred shares, to be cancelled. For some years the sales of the company's land were very small, and it was not until 1902 that the directors found themselves in a position to declare a dividend, when 2 per cent. on the Preferred stock was paid. Owing to largely increased immigration, and the subsequent demand for land, the prosperity of the company rapidly improved, and in 1903 a dividend of 5 per cent. was paid, followed in 1904 by 6 per cent., at which rate dividends continued to be paid on the Preferred stock until that stock was extinguished in 1906.

It should here be stated that in 1903 the company applied to the Canadian Parliament for special powers to extinguish the capital by repayment, in addition to the purchase and cancellation of shares in accordance with the original scheme, and in pursuance of this policy—the directors having meanwhile accumulated a sufficient sum to admit of it—a repayment to the shareholders of 20 per cent. of the Preferred stock was made in 1904, and in the following year a further 20 per cent. was repaid. In 1906 the balance of 60 dollars per share was returned, and the stock finally extinguished. In March, 1907, one-half of the Common stock was repaid, and the nominal value of the Common shares now stands at 12.50 dollars.

In common with the other large land-owning companies, the Canada North-West Land Company decided to considerably raise the price of its land in 1906, which for that year averaged 9.82 dollars per acre, and this year the average price obtained has been 11.25 dollars. This naturally somewhat retards sales, and must continue to do so until speculative holders are cleared out. The assets of the company, as revealed in the annual report recently published, included at December 31st, 1906, 539,895.90 acres of farm lands and nearly 2,000,000 dollars in respect of balances to be received on land contracts outstanding, besides the interests in the town sites referred to above, the value of which is not easily ascertained.

It will be seen, therefore, that, placing the moderate valuation of 10 dollars per acre upon the land unsold, the assets are sufficient to provide about ten times over the amount of the outstanding capital of the company, which is now only 733,840.63 dollars. The policy of the board is to repay the capital to the extent of 24 dollars per share, after which, subject to the provision of a fund to provide for the ultimate repayment of the balance of one dollar per share, the receipts from the sale of farm lands, &c., will be distributed to the shareholders by way of dividends.

CONCLUSIONS :

That the Land Companies of Canada exercise a most powerful influence upon the settlement and rapid development of the Dominion.

That, in particular, the Land Companies operating in North-Western Canada have pursued policies which were, in most cases, calculated from the outset to ensure careful administration, and the settlement of their lands on lines which were likely to ensure permanent ultimate prosperity.

CHAPTER III.

ADDENDUM: CANADIAN HOMESTEAD REGULATIONS.

AS supplementing what I have written in the preceding chapters regarding Canadian land enterprises, I have thought it well to interpolate at this stage a transcription of the regulations governing the Homestead arrangements in Manitoba and the North-West Territories. These Regulations are also further referred to in a subsequent chapter dealing with "Canadian Immigration," and various other particulars and statistics relating to Canadian lands will be found elsewhere in this volume.

HOMESTEAD REGULATIONS.

HOMESTEAD ENTRIES.—Any even numbered section of Dominion Lands in Manitoba or the North-West Territories (excepting 8 and 26) which has not been homesteaded, reserved to provide wood-lots for settlers, or for other purposes, is available for homestead entry.

A homestead entry for one quarter section, containing 160 acres, more or less, can be obtained by any male over 18 years of age on payment of a fee of \$10.

A woman who is a widow, having minor children dependent upon her, is entitled to a homestead entry.

Entry may be made personally at the local land office for the district within which the land to be taken is situate, or if the homesteader desires he may, on application to the Minister of the Interior, Ottawa, the Commissioner of Immigration, Winnipeg, or the local agent for the district, receive authority for some one to make entry for him.

All homestead fees must be paid to the local agent.

HOMESTEAD DUTIES.—A settler who has been granted entry for a homestead is required by the provisions of the Dominion Lands Act and the Amendments thereto, to perform the conditions connected therewith, under one of the following plans :—

- (1) At least six months' residence upon and cultivation of the land in each year during the term of three years.

It is the practice of the Department to require a settler to bring 15 acres under cultivation, but if he prefers he may substitute stock ; and 20 head of cattle, to be actually his own property, with buildings for their accommodation, will be accepted instead of the cultivation.

- (2) A settler may reside with his parents instead of upon his homestead, provided they occupy farming land in the vicinity, and he can count this time as residence after the date of his entry.
- (3) A settler may reside upon his first homestead instead of upon his second homestead if he prefer it, provided it is in the vicinity, the time to count from a date subsequent to the second entry.

- (4) If the settler has his permanent residence upon farming land owned by him in the vicinity of his homestead, the requirements of the Act as to residence may be satisfied by residence upon the said land.

The term "vicinity" used above is meant to indicate the same township or an adjoining or cornering township.

A settler who avails himself of clauses (2), (3) or (4) must cultivate 30 acres of his homestead or substitute 20 head of stock, with buildings for their accommodation, and have besides 80 acres substantially fenced.

No applications to vary the homestead provisions can be entertained, as such are established by Act of Parliament.

Every homesteader who fails to comply with the requirements of the homestead law is liable to have his entry cancelled, and the land may be again thrown open for entry.

APPLICATIONS FOR PATENT should be made at the end of three years before the local agent, sub-agent or Homestead Inspector. Before making application for patent the settler must give six months' notice in writing to the Commissioner of Dominion Lands at Ottawa of his intention.

In the case of a deceased homesteader any duties still required may be performed by the legal representatives or some person appointed by them to do so, and when completed to the satisfaction of the Commissioner of Dominion Lands the patent will be issued to the personal representative after letters of administration or probate of the will have been filed in the Department.

SCHOOL LANDS.

GRAZING LEASES.—Leases of School Lands in Manitoba and the North-West Territories are issued for grazing purposes, subject to a rental of 6 cents per acre per annum in Manitoba and 4 cents per acre per annum in the Territories.

The term of the lease is five years, but it is revocable at any time during its currency on three months' notice being given the lessee.

HAY LEASES.—Leases of School Lands in the North-West Territories are also issued for hay-cutting purposes at a rental of 25 cents per acre per annum. The term of the lease is the same as that for grazing, and the lease is also revocable on three months' notice being given the lessee.

HAY PERMITS.—Permits to cut hay on School Lands may be obtained by actual settlers for their own use from any agents of Dominion Lands on the same terms and conditions as permits for the same purpose on Dominion Lands, that is to say, on payment of an office fee of 50 cents and 10 cents per ton as dues.

The rate to others than actual settlers is \$1.00 per ton.

SYNOPSIS OF REGULATIONS GOVERNING TIMBER, GRAZING, HAY, DOMESTIC COAL AND IRRIGATION ON DOMINION LANDS IN MANITOBA, THE NORTH-WEST TERRITORIES, AND WITHIN THE RAILWAY BELT IN THE PROVINCE OF BRITISH COLUMBIA.

TIMBER ON DOMINION LANDS IN MANITOBA, THE NORTH-WEST TERRITORIES, AND WITHIN THE RAILWAY BELT IN THE PROVINCE OF BRITISH COLUMBIA.

LICENCES.—A licence to cut timber can be acquired only at public competition. A rental of \$5.00 per square mile is charged for all timber berths excepting those situated west of Yale in the Province of British Columbia, for which the rental is at the rate of 5 cents per acre per annum.

In addition to the rental, dues at the following rates are charged :—Sawn lumber, 50 cents per 1,000 feet B.M.; railway ties, eight and nine feet long, $1\frac{1}{2}$ and $1\frac{3}{4}$ cents each; shingle bolts, 25 cents a cord; all other products, 5 per cent. on the sales.

A licence is issued as soon as a berth is granted, but in unsurveyed territory no timber can be cut on the berth until the licensee has made a survey thereof.

PERMITS.—Permits to cut timber are also granted at public competition, except in the case of actual settlers who require the timber for their own use.

Settlers and others may also obtain permits to cut up to 100 cords of wood for sale without competition.

The dues payable under a permit are \$1.50 per 1,000 feet B.M. for square timber and sawlogs of any wood except oak; from $\frac{1}{2}$ to $1\frac{1}{2}$ cents per lineal foot for building logs; from $12\frac{1}{2}$ to 25 cents per cord for wood; 1 cent for fence posts; 3 cents for railway ties; 20 cents per thousand for shingles manufactured from timber cut in Manitoba and the North-West Territories and 50 cents per cord on the shingle bolts in British Columbia.

Homesteaders having no timber of their own are entitled to a permit free of dues to cut the following quantities:—3,000 feet of building logs, not to exceed twelve inches in diameter at the butt end. If the timber is cut from dry trees, 3,000 lineal feet of any diameter may be taken, but should the building timber be sawn at a mill in no case will the permittee be entitled to receive more than 9,250 feet B.M. free of dues; 400 roof poles; 500 fence posts; 2,000 fence rails.

Homesteaders and all *bona fide* settlers whose farms may not have thereon a supply of timber, or who are not in possession of wood-lots or other timbered lands, will be granted a free permit to take and cut dry timber for their own use on their farms for fuel and fencing.

A permit fee of 25 cents in each case is charged.

GRAZING IN MANITOBA AND THE NORTH-WEST TERRITORIES.—Leases for grazing purposes are issued for a term of twenty-one years, and the rental is at the rate of 2 cents an acre per annum, payable half-yearly in advance.

Lands included in a grazing lease may be withdrawn for homestead entry, sale or railway purposes, but no rental is charged on such lands from the date upon which they are withdrawn from the lease.

Grazing leases of School Lands in the province of Manitoba may be issued for a term of five years, at an annual rental of 6 cents an acre, payable in advance, but the Department may terminate the lease at any time by giving the lessee three months' notice.

Grazing leases of School Lands in the North-West Territories are for a term of five years, and the rental is at the rate of 4 cents an acre per annum, payable in advance. This lease may also be terminated at any time by giving the lessee three months' notice.

Lessees of School Lands are not allowed to break up or cultivate any portion of the lands leased.

A lessee of grazing land is not entitled to the hay thereon, but he may, upon application to the agent of Dominion Lands, obtain each year the first permit to cut on his leasehold whatever quantity of hay he may require for his own use, free of dues, the Department reserving the right to issue permits to other applicants thereon.

HAY.—A settler in the vicinity of unoccupied Dominion Lands may obtain a lease to cut hay on an area thereof not exceeding forty acres. The term of the lease is five years and the rental 25 cents an acre per annum payable in advance.

Leases for hay purposes of not more than 640 acres and not less than 160 acres of School Lands in the North-West Territories may be issued upon payment in advance of the rental at the rate of 25 cents an acre per annum.

Applications for permits to cut hay are made after the 1st day of January in each year to the agent of Dominion Lands in whose agency the land containing the hay is situated, and permits are issued on and after the 1st day of April following, upon payment of a fee of 50 cents and the dues hereinafter prescribed.

If before the 1st day of April more than one application is received for a permit covering the same tract of land, the agent, if he cannot arrange a division of the land to suit the applicants, may post a notice in his office calling for tenders for the purchase of the hay, and the permit is awarded to the person offering the highest cash bonus.

No hay shall be cut prior to a date to be fixed each year by the Minister of the Interior.

The dues chargeable for permits to actual settlers who require the hay for their own use are 10 cents an acre or 10 cents per ton, and to all other persons the rates are 50 cents an acre or 50 cents per ton, payable in advance.

DOMESTIC COAL.—Permits to mine coal for domestic purpose may be issued on application to the agent of Dominion Lands for the district in which the lands are situated for an area not exceeding three acres, which area must previously have been staked out by planting a post in each corner. The frontage must not exceed three chains or the length ten chains. Rental, \$5.00 an acre per annum and royalty 20 cents per ton for anthracite coal, 15 cents per ton for bituminous coal, and 10 cents for lignite coal. Sworn returns of the quantity mined under a permit to be made monthly. No rental to be charged if the permittee is the owner of the surface.

IRRIGATION IN THE NORTH-WEST TERRITORIES.—An applicant for permission to construct works to divert a quantity of water exceeding ten cubic feet per second, shall file with the Commissioner of Public Works at Regina a memorial setting forth the particulars with respect to the application, and a plan of the proposed works. He shall also give notice of such filing in some newspaper published in the neighbourhood, to be named by the Commissioner, not less than once a week for a period of thirty days.

So soon as these conditions have been complied with, the Minister of the Interior may authorise the construction of the works within a certain period. Upon the completion of the works an inspection thereof shall be made by the chief engineer and surveyor of the Department of Public Works of the North-West Territories, and upon receipt of a certificate from him that they have been built in accordance with the plans and specifications submitted by the applicant, and that the necessary right of way for the works has been obtained, a licence may be issued in his favour by the Minister of the Interior upon payment of a fee of \$10.00. It is, however, necessary that the applicant shall furnish proof that he is the owner of the land to be irrigated, or that he has arranged with the owners thereof to furnish them with water, before a licence is issued in his favour.

The applicant for a less quantity of water than ten cubic feet per second is not required to furnish such full information in relation to his application as the Act prescribes in the case of an applicant who desires a larger quantity of water.

SECTION IX.

CANADIAN BANKS AND
BANKING.

CHAPTER I.

THE CANADIAN BANKING SYSTEM.

THE FOUNDING OF A BANK IN CANADA.—THE DOUBLE LIABILITY OF THE SHAREHOLDER.—CANADIAN BANK CHARTERS.—THE PRINCIPLES ON WHICH CANADIAN BANKING IS BASED.—THE QUESTION OF NOTE ISSUES.—THE ELASTICITY OF CIRCULATION.—THE BRANCH SYSTEM AS PRACTISED IN CANADA.—RESERVES AND CURRENCY SUPPLIES.

THE Canadian banking system has played such an important part in the commercial development of the country that something more than a passing reference to it is necessary in any work dealing with the Dominion of Canada as it is to-day. In the following necessarily superficial and incomplete survey of the subject no attempt is made to trace the evolution of Canadian banking, attention being concentrated, not on historical facts, but on modern practice, for it is in the present, not the past, that the general reader is mainly interested. In the present chapter the uninitiated may discover what are the distinctive features of a banking system which, according to general acknowledgment, has been peculiarly successful in serving the ends for which it was devised. The Canadian system, if not perfect, is as near perfection as it can well be made. The two chief needs of the country are an elastic currency and banking facilities in the shape of monetary accommodation on fairly uniform terms throughout the wide expanse of the Dominion. Those needs, as experience has proved, are admirably supplied by the present system.

In Canada the formation of a bank is a comparatively simple operation. A certain number of individuals, having complied with certain requirements which need not be detailed here, make application for a Charter, which Parliament might, theoretically, refuse, but which, as a matter of fact, would not be withheld unless doubt existed as to the bona-fide character of the proposed institution. Then, on certain other requirements being satisfied and the consent of the Treasury Board obtained, the bank is ready for business.

The minimum subscribed capital with which a bank is permitted to start operations is 500,000 dollars, of which half, or 250,000 dollars, must be paid up. The minimum is placed high because the bank enjoys the privilege of opening branches and issuing a bank-note currency not secured by special pledge with the Government. Moreover, the cash subscription of at least a quarter of a million dollars, the existence of which is proved by the temporary deposit with the Treasury Department of the actual money, ensures that the projectors of the proposed bank are risking a sum considerable enough to demonstrate the bona-fide character of the venture.

In Canada, as in the United States, bank shareholders are subject to what is known as "double liability." The exact significance of this phrase may best be shown by quoting the section of the Banking Act in which this duplicate obligation is imposed :—" In the event of the property and assets of the bank being insufficient to pay its debts and liabilities, each shareholder of the bank shall be liable for the deficiency to an extent equal to the par value of the shares held by him, in addition to any amount not paid up on such shares." The practical value of this power to call upon bank shareholders for a second payment has been doubted by many, and even now the arrangement is not completely free from defects. But every possible effort has been made to guarantee an honest share list and to prevent shareholders from escaping their liability.

In the old days shares were transferred just before the failure of a bank to men unable to meet calls, or were found to be held by men of straw, who owed a corresponding amount, while many of the shareholders were borrowers for amounts far in excess of their shares. To remove drawbacks of that sort various amendments of the Banking Act have been effected. Thus banks are now not allowed to lend money on their own stock or on that of any other bank ; nor do transfers within 60 days before failure avert the double liability of the transferor unless the transferee is able to pay. Moreover, a list of shareholders in all banks is published annually by the Government, and is closely scrutinised by investors with the object of discovering changes which might indicate mistrust. Another important fact is that the stock is widely held as a result of the large capital and the numerous branches of a more or less national character.

All the charters of the Canadian banks are for ten year terms, subject to renewal. The great advantage of this arrangement is that it ensures a complete discussion of the principles underlying the Banking Act and of the details of its working once in ten years. On the one hand, the banks are called upon to answer such criticism as defects disclosed

in the working of the Act may provoke, while, on the other hand, they themselves are often anxious to secure amendments and to suggest remedies for evils or difficulties such as experience may bring to light. These decennial discussions are, on the whole, of much advantage to the banks and the public, as they ensure the development of Canadian banking practice on enlightened lines, and obviate the danger of the system becoming antiquated in any way and unsuited to the growing and changing needs of the community. By these periodical revisions the Act is brought up to date every ten years, and at each renewal is made to conform with a higher degree of perfection.

The essentials of a banking system designed to meet the requirements of a rapidly-growing country, and which is at the same time safe and profitable, may be briefly summarised as follows :—

- (1) The creation of a currency free from doubt as to value, readily convertible into specie and answering in volume to the requirements of trade ; (2) The machinery necessary for the distribution of money over the whole area of the country, so as to prevent possible inequalities in the rate of interest ; (3) Ability to supply the legitimate wants of the borrower at all times ; and (4) The greatest possible measure of security for the depositor.

It is claimed for the Canadian system that it possesses all these essentials, and recent experience goes far to show that it does. By successive Acts of the Dominion Parliament the banks have been empowered to issue circulating notes, of the value of 5 dollars and over, to the extent of the unimpaired paid-up capital. By the first Banking Act—that of 1870—the note-holder's security was no better than that of the depositor, but by the Act of 1880, he was given a prior lien on the assets, while by the Act of 1890 the banks, at their own suggestion, agreed to create within two years a safety fund, called the Bank Circulation Redemption Fund, consisting of contributions from the banks of an amount equal to 5 per cent. of the average circulation of each contributing bank.

This fund, which is in the custody of the Minister of Finance, and bears interest at the rate of 3 per cent. per annum, is specifically set apart for the payment of notes of failed banks, and is employed by the liquidator should he be unable to redeem notes in full after the lapse of sixty days. Redemptions are made without regard to the amount which the failed bank has contributed, and when the redemptions exceed such payments the Minister of Finance may call upon the other banks to make good to the fund the amount of such excess. These calls, however, are limited to 1 per cent. annually of the amount of their circulation, and the sums thus paid by the banks are reimbursed to them if they are recovered from the failed bank. It is interesting to note that the

history of Canadian banking since Confederation furnishes no instance in which a depletion of such a guarantee fund would have occurred.

A further important provision made by the Act of 1890 was that the notes of failed banks should bear interest at the rate of 6 per cent. per annum from the date of suspension to the day named for their payment. The result is that the notes of a failed bank become up to the time of redemption as valuable an investment as a 6 per cent. bond. The holders of such notes, who in the old days were often glad to get rid of them at a discount, would now find no difficulty in selling them at par to the other chartered banks, to brokers or to persons having money seeking temporary investment.

The distinctive features of Canadian bank-note issues then are as follow :—(1) They are not secured by the special deposit with the Government of bonds or securities, but are prior lien credit instruments based upon the general assets of the banks issuing them ; (2) in order that they may be not less secure than notes issued against bonds, as in the United States, they are made a first charge upon the assets. It may be noted here that bank-note holders take precedence of all creditors, even the claims of the Dominion Government ranking second, and those of the Provincial Governments third ; (3) in order to avoid discounts, for geographical reasons each bank is obliged to arrange for the redemption of its notes in the commercial centres throughout the Dominion ; (4) finally, the holders of bank-notes are doubly secured against loss of capital and interest by the existence of a common redemption fund, as above described, and the payment of 6 per cent. interest for the period intervening between suspension and redemption.

It will thus be seen that the note issues of the Canadian banks are about as well secured as human ingenuity can devise. They are a prior lien on the banks' assets, including the shareholders' double liability and, in the event of those proving insufficient, a special guarantee fund may be drawn upon.

One of the most important benefits of the Canadian bank-note circulation is its elasticity—a result due, not to legislation, but to the successful resistance of Canadian bankers to Government proposals for a specially-secured currency. The banks pay out notes when business activity demands them, and the notes drift back for deposit and the settlement of discounts when business slackens, becoming a liability on the part of the Bank only when in circulation. As the notes are not specially secured on Government bonds, it always pays Canadian banks to issue currency when trade demands it. But, as a leading Canadian banker has declared, no bank issues notes without reference to its power to redeem any

more than a solvent merchant issues promissory notes regardless of his ability to pay.

Moreover, inflation is avoided by the fact that notes not required for purposes of trade soon find their way back to the issuing bank by the operation of the system under which each bank seeks to keep out its own notes, and therefore sends back daily for redemption the notes of other banks. Of course, if trade is inflated, the circulation is correspondingly inflated, but this sort of legitimate inflation is a very different thing from the existence of a great volume of paper money not required by trade. In Canada there has never been any inflation of currency. The important American authority, Conant, writing on this subject, observes :—
“ The Banking experience of Canada in recent years is a sufficient vindication against the charge that a banking currency leads to inflation.”

It might be argued that a currency secured on Government bonds instead of on a bank's assets would prove equally effective, and doubtless it would, but without the inestimable advantage of elasticity. As the experience of the United States proves, if the business of issuing currency against Government bonds were profitable, too much currency would be the result, whereas if it were unprofitable there would be too little. If it was possible to guarantee a state of affairs under which the profit obtained on issuing notes would at all times bear an exact relation to the currency requirements to the country, a bond-secured currency might suit Canada. But the establishment of such a relation is impossible, and, therefore, such a system would not work.

In Canada the currency requirements of the people vary considerably, not only from year to year, but in the course of every twelve months. Between the low average of the circulation during eight months of each year and the maximum attained in the busiest period of the autumn and winter there is a difference of no less than 20 per cent. The movement downward and upward, moreover, is very sudden, and had the banks not the power to issue there would unquestionably arise serious stringency in the autumn, while without the force which brings about redemption in the spring—the desire of each bank to present for redemption the notes of its rivals—there would be a plethora of currency. Experience has proved that the circulation rises and falls, or adjusts itself automatically, in accordance with the country's requirements.

One of the most striking advantages of the Canadian banking system is the institution of numerous branches. By this means one section of the community is not sacrificed to another, and the large banks are enabled to distribute accommodation evenly and at rates varying not more than say $1\frac{1}{2}$ per cent. between United States fishing villages or far Western farming towns and the

large commercial centres throughout the country, to mass currency where it is most needed, and by their power to issue notes to equip every branch with ample resources for sustaining credit without weakening cash reserves. In a country whose savings do not exceed the money required for fresh ventures the problem is to place the savings of the thrifty and slow-going communities at the disposal of the more enterprising localities, and this is the problem which has been so satisfactorily solved in Canada, thanks to the wide distribution of bank branches.

In Canada banks are really national institutions and not merely local concerns, as in the United States. In the latter country there are banks in the East seeking investment for their funds and refusing to pay interest because of their inability to employ their deposits ; and, on the other hand, there are banks in the West and South unable to satisfy the demands of their borrowing customers because they have only local money at their command, and have no direct access to the accumulations of the East, so eagerly seeking investment. But in Canada, thanks to the branch system, the East is ever ready to satisfy the demands of the West.

The Bank of Montreal, for instance, borrows money from depositors in Halifax and in the rich agricultural districts of Ontario, where the savings largely exceed the demands of new enterprises, and lends in Vancouver and the North-West, where the demands of fresh enterprises largely exceed the locally accumulated savings. So perfectly is this distribution made that as stated above between the highest class of borrower in Toronto and the ordinary merchant in the North-West the difference in interest paid is trifling, in marked contrast to the United States, where the rates to traders and others range up to 12 per cent. in some of the States. To quote the picturesque phrase of Mr. B. E. Walker, the President of the Canadian Bank of Commerce : " Capital marches automatically across the Continent " to find the borrower, and the extra interest obtained scarcely pays for the loss of time it would take to send it so far were the machinery not so perfect.

While no reserves are actually required by law, the Canadian banks keep cash reserves in gold and legal tender the average for some years being about 10 per cent. The smaller banks keep their available resources in securities, call loans at home, and balances with their bankers in Montreal and New York, while the large banks, in addition to these securities and call loans in Canada, lend to a large extent on easily-liquidated securities in the United States. While banks are not obliged to keep reserves of any fixed amount, it is stipulated that 40 per cent. of whatever cash reserves they may hold must be in Dominion legal tenders.

The question that now arises is : Will the present system bear

the strain that is being thrown upon it by the growth of trade? It is obvious that the currency requirements of Canadian trade are now appreciably greater than they were even a few years ago, and they are increasing every twelve months. Will the banks be able to continue to meet the demands made upon them? Hitherto they have experienced little difficulty in providing adequate supplies of currency, and, as far as can be foreseen, they are not likely to experience any difficulty in the future.

Thanks to the branch system and the fact that banking facilities are widespread, currency quickly finds its way back to the bank, and a little of it goes a long way. The circulation of notes has considerably increased, as was only to be expected, in recent years, and, while the banks were formerly content to exercise their powers up to the extent of only about 50 per cent., recent statistics show that for some few years the circulation has been nearer 75 per cent. of the paid-up capital. No doubt a time will come when it will be necessary to provide for a much larger circulation than at present. Meanwhile, existing banks will probably have augmented their capitals, and consequently their note-issuing powers, while new undertakings will possibly have arisen.

CONCLUSIONS :

That the Canadian Banking System is admirably suited to the needs of the country.

That periodical revision of the Bank Act ensures the system being kept up to date.

That the note issues of the Canadian Banks are as well secured as they could be.

That the circulation adjusts itself automatically in accordance with the country's requirements.

That the system of large Banks with numerous branches best secures the distribution of capital in centres where it is most needed.

That in the words of that eminent banking authority, Mr. B. E. Walker : "Capital marches automatically across the continent."



THE BANK OF MONTREAL: HEAD OFFICE, MONTREAL.

CHAPTER II.

THE BANK OF MONTREAL

THE BEGINNINGS OF THE GREAT BANK.—ITS PERSONALIA.—
EARLY CONSERVATISM.—THE PALATIAL OFFICES.—THE VICE-
PRESIDENT AND GENERAL MANAGER.

IT was in the year 1817 that the Bank of Montreal commenced business in a hired room in St. Paul's Street, Montreal, for which the very modest rental of £150 per year was paid. The capital of the company was £250,000, and of this £70,000 was paid up. To-day its head office, illustrated opposite, is the most palatial banking edifice in the world, and the paid-up capital of the company has been increased from time to time, until it now reaches the great total of £2,958,904, with a reserve of £2,260,274, and banking premises, carried in the balance-sheet at only £123,287, though worth over ten times that sum.

Sanguine as no doubt the expectations of the founders of the bank were, it is hardly probable that they foresaw the gigantic dimensions which their enterprise was destined to assume, or that it would play so large and important a part in the commercial development of the northern part of America. The history of the bank may be said to be the financial history of Canada, except that its record has been happily free from the disasters which have otherwise from time to time occurred in the Dominion. These periods of financial stress were almost inevitable in the early history of a new country, but so wise and prudent has been the management of the affairs of the bank from its commencement that, with the exception of two years, the company has paid since its formation dividends averaging 10 per cent. per annum.

To have had such a career of unbroken success, it is scarcely necessary to point out that the bank has been conducted with the greatest wisdom, foresight and ability. This has, no doubt, been largely due to the fact that it has always commanded the services of the foremost banking men of the country—men not only of financial genius, but of the highest commercial standing, integrity and worth. The bank was not granted a charter until some years after its foundation, but it is an interesting fact that the main provisions of the charter were incorporated in the charters granted subsequently to other banks, and that these provisions were almost

in their entirety embodied in the General Banking Act passed after the Confederation of the States.

Amongst the galaxy of eminent financiers who have served the bank, it is difficult to make distinctions, but careful perusal of its history prior to its present management leads me to believe that two men stand out pre-eminently : one is Mr. David Davidson, and the other is Mr. E. H. King. The former gentleman, in the year 1855 reorganised the bank system by the introduction of Scotch methods and principles. Owing largely to the sound methods he engrafted upon the management and control of the bank, it came safely through the panic which almost overwhelmed the business community of the United States in 1857. Nor was this all : the merchants of Montreal were largely saved also from serious disaster by the wisdom and foresight shown by Mr. Davidson. The panic of 1857 was, of course, not confined to the United States. In those manufacturing districts in England which exported goods to America payments for foreign goods had to be suspended. Canada, of course, suffered severely, as the banks had to curtail accommodation and restrict their note issues, thus preventing the usual advances being made for moving the crops. How serious and far-reaching the effects were is proved by the fact that between October, 1856, and November, 1857, the combined circulation of all the banks fell from 14,616,000 dollars to 9,886,400 dollars.

Mr. King was an Irishman. He seems to have combined all the dash and enterprise of his native country with the caution of the "Land o' Cakes." Unquestionably, during his association he made the bank one of the most influential corporations in the world ; every month of his service was epoch-making. He fought long and hard to make the bank a Government institution, similar to the Bank of England, and was only defeated by the practically united hostility of the other banks. He faced an enormous amount of unpopularity and the loss of one million dollars of the bank's money in order to do away with the large business the bank had done in Upper Canada in accommodation paper. He increased the bank's prestige with the Government of the day to an unprecedented extent, and he, on his retirement, left the institution in an infinitely stronger position than when he assumed the reins of office.

It would fill a volume to relate the important part the bank has played in the development of the country's resources, but it is impossible to pass on without mentioning that it was with the legitimate assistance supplied by the Bank of Montreal that the Canadian Pacific Railway was constructed. Of course, the time would have come when the railway would have been built, but there is no question that the courageous, statesmanlike and enterprising

action of the bank led to the road being built some years before it would otherwise have been. Very little consideration is sufficient to show that it was only the support of this powerful organisation which rendered it possible at that time to obtain the large amount of money necessary for this great work. It was not long before the company had its reward, because a period of tremendous expansion immediately set in. Official figures show that in five years from the opening of the railway the foreign trade of Canada rose from 189,000,000 dollars to 208,000,000 dollars, and the deposits of the chartered banks from 104,000,000 dollars to 135,000,000 dollars. In this great increase in the business of the country, the Bank of Montreal, no doubt, received its full share.

As an indication of the early conservative character of the management, it may be mentioned that in 1819, after a dividend of 8 per cent. had been paid, a balance of 4,168 dollars was laid aside as a reserve fund. This reserve fund has been steadily growing, with one or two temporary interruptions, ever since. In 1825 it was 30,780 dollars. Two years later it was 107,084 dollars; in 1830 it was 30,360 dollars; five years subsequently it stood at 80,660 dollars, going up to 197,828 dollars in 1837. In 1840 it showed 89,480 dollars; ten years later it was 120,192 dollars. In 1860 it had increased to 740,000 dollars, in 1870 to 3,000,000 dollars, in 1880 to 5,000,000 dollars, in 1897 to 6,600,000 dollars, and at the present time it stands at the huge total of 11,301,370 dollars.

The past eleven years, of course, have been a period of great growth. This can be seen from the following tables:—

LIABILITIES.

| | Oct. 31st, 1896. | Oct. 31st, 1901. | Oct. 31st, 1906. |
|----------------------------------|---------------------|---------------------|---------------------|
| | £ | £ | £ |
| Capital stock | 2,465,753 | 2,465,753 | 2,958,904 |
| Rest | 1,232,870 | 1,438,356 | 2,260,274 |
| Note circulation | 1,095,225 | 1,707,193 | 2,473,170 |
| Deposits and current accounts .. | 7,484,981 | 17,382,324 | 26,692,082 |

ASSETS.

| | | | |
|---|-----------|------------|------------|
| Coin and Government Notes .. | 893,340 | 1,396,021 | 2,385,024 |
| Due by branches, agents, and on call and short loans | 3,067,781 | 7,934,517 | 7,892,421 |
| Investments | 509,171 | 1,007,270 | 1,125,881 |
| Loans and discounts | 7,623,368 | 12,333,630 | 20,920,780 |

I have now before me the balance-sheet of the bank for the year ending April 30th, 1907. It shows a profit, after deducting all charges, of £398,686, making, with £164,764 brought in, a total available balance of £563,450. Of this £295,890 was absorbed by the four quarterly dividends of $2\frac{1}{2}$ per cent. (making 10 per cent. for the year), while the "rest" account was credited with £205,479, leaving £86,855 to be carried forward. By this addition the "rest" is raised to £2,260,274.

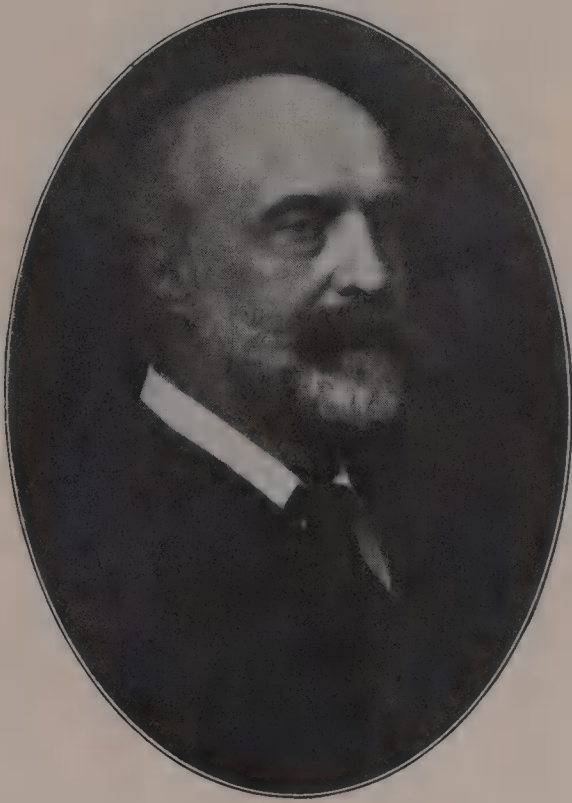
The bank's general statement shows that the deposits and current accounts have increased, within the past five years, from £17,382,324 to £26,893,386. On the other hand, the current loan discounts have risen within the same period from £12,333,630 to £21,477,194.

In the earlier part of this chapter I referred to the palatial character of the head office at Montreal. It would be very difficult to exaggerate the beauty of this building. Personally, I have seen nothing to exceed it, either in London or the United States. It is regarded as one of the show places of Montreal, and a traveller would no more think of going to this famous old city without a visit to the bank than he would fail to see the beautiful old cathedral. The main banking room is in the form of a Roman basilica, similar to the famous churches of Santa Maria Maggiore and San Paolo Fuori. The main floor is about 60 ft. wide and 165 ft. long, surrounded by a colonnade of 32 Corinthian columns, 31 ft. high, of polished green syenite, with Belgian black bases, and solid bronze capitals, plated with gold. These columns are separated at intervals by massive piers of pink Knoxville marble. Beneath the bank there is the Montreal Clearing-house, which in point of convenience and organisation probably compares with anything in the world.

The Bank of Montreal has sometimes been criticised by the narrow-minded or self-interested in Canada, for loaning so much call money abroad and practically none at home; but it is precisely this broad international banking principle and sound policy which is Canada's greatest safeguard against serious financial disturbances. With many millions of money quickly available at what may be described as its Reserve Offices—namely, London, New York and Chicago—for use in Canada should necessity arise, this great institution may be said to stand on guard with its vast resources, to protect the financial interests of the Dominion as does the Bank of England those of Great Britain. It is pertinent to state that it was in consequence of the Bank of Montreal's strong position that last autumn Mr. Clouston was able to decide in some twenty minutes to take over the Ontario Bank, and by so doing he doubtless averted what might have ended in panic and disaster.

Before concluding my sketch of the Bank of Montreal, it is necessary to refer to Mr. E. S. Clouston, the vice-president and general manager of the bank. I had not been in Montreal very long before I heard him spoken of in terms of the highest respect and admiration, and throughout my journey across the continent I found that he enjoys the widest possible confidence of the business community.

My own personal impressions, in the interview I had the pleasure of having with him shortly after my arrival in Montreal, were that he is a man of great force of character, keen intellect,



MR. E. S. CLOUSTON,
General Manager of the Bank of Montreal.

and of wide and varied experience of men and affairs. Although controlling probably one of the most conservative institutions in the world, he impressed me as being vividly receptive to new ideas, and full of energy and enterprise. He did not seem to distrust the mighty forces which are moving Canada from end to end, but, on the contrary, appeared to be confident that the progress being made was built on a solid and enduring foundation, that there was no undue inflation, and that there were in the near future tremendous commercial and agricultural possibilities for the country.

For days, in Montreal, I had lived in an atmosphere of boundless optimism, and I felt that when I saw Mr. Clouston I should probably have a douche of cold water ; but, so far from this being the case, he, while expressing his views with all possible reserve, showed that he was heart and soul in sympathy with the young Canada of to-day. He is generally accepted as one of the ablest financiers in Canada, and the best active head this great institution has ever had. It is under his *régime* that the bank became, and remains, the bankers and financial agents of the Dominion of Canada.



Mr. F. W. TAYLOR,
London Manager of the Bank of Montreal.

The Bank of Montreal has its London offices in Threadneedle Street. It was only recently that the bank acquired those splendid premises, familiar to Londoners and especially interesting to Canadian visitors.

The London Manager is Mr. F. W. Taylor, whose intimate knowledge of the men and affairs of Canada, the United States, and Newfoundland, obtained through years of inspection work and otherwise, is unsurpassed and invaluable in his present position, his zeal on behalf of the great institution which he represents being fully recognised by the business community on this side.

All deserving Canadians and Canadian enterprises find a friend in the London Branch of the Bank of Montreal as is testified by the many thousands who have had the experience.

CONCLUSIONS :

That the Bank of Montreal is a splendid example of a strong and sound Colonial banking institution.

That associated with its history and traditions there has been a veritable galaxy of eminent financiers.

That the Bank has played an all-important part in the development of the commercial and industrial resources of the Dominion.

That its headquarters in Montreal present one of the finest banking premises in the world.

That in its Vice-President and General Manager it has a pillar of strength, and a man in whom the Canadian public have the utmost confidence.

CHAPTER III.

THE CANADIAN BANK OF COMMERCE.

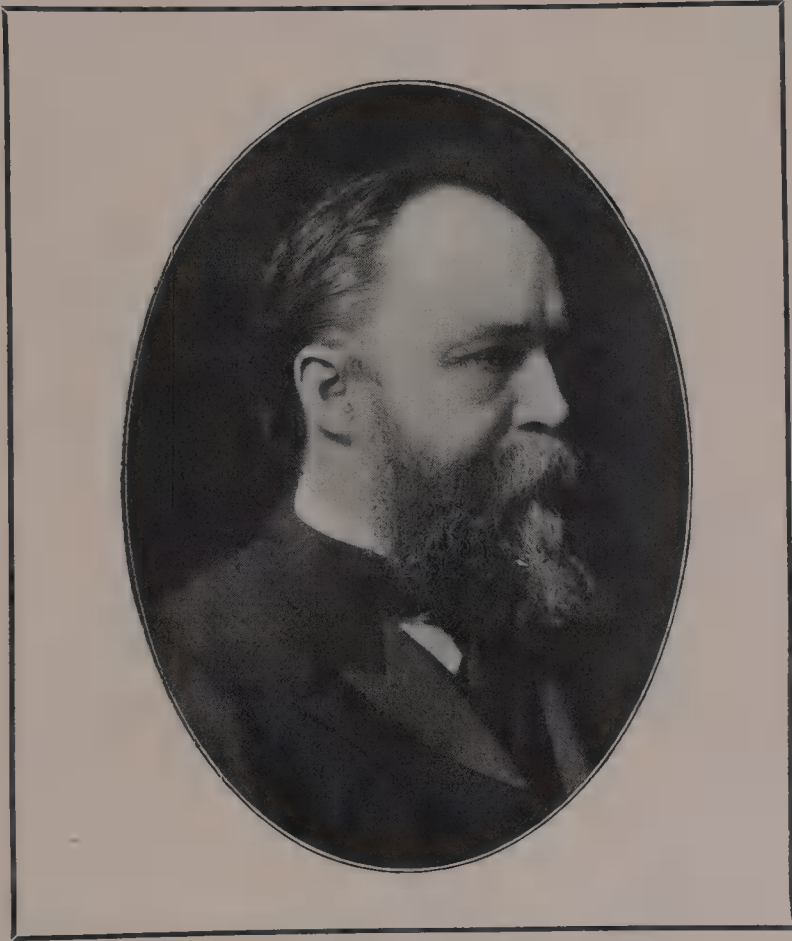
THE HISTORY AND GROWTH OF THE BANK.—ITS FINANCIAL POSITION AND PROSPECTS.—A GREAT FUTURE ANTICIPATED —THE PERSONALIA OF THE BANK.

NO one acquainted with the history of the Canadian Bank of Commerce can fail to be impressed with its wonderful growth its tremendous activities, and its far-reaching operations. Accustomed as we are in this country to the slow, ponderous progress of our banking institutions, it is difficult to realise the fierce energy with which this Colonial bank has forced itself to the front. The history of no institution in that country of financial wonders—the United States of America—affords a parallel. The Canadian Bank of Commerce stands alone as an example of what can be accomplished in a new country by enterprise tempered by caution, by ability aided by experience, and by a unique capacity to make the most of opportunities.

Like the Bank of Montreal, the Bank of Commerce started in a comparatively small way. Early in 1858 a charter was obtained from the Legislative Assembly for a bank, to be called the Bank of Canada, but, for reasons which are not now clear, no steps were taken, or, at any rate, were successful, to establish a bank. In 1867, however, a company was formed, and the charter of this bank was purchased, the name being changed to the "Canadian Bank of Commerce." The paid-up capital of the new institution at the close of the first year was 916,359 dollars, and the "rest" 40,000 dollars. In 1870 the Gore Bank was acquired.

The capital of the company has been steadily advancing. By 1874 it had increased to 6,000,000 dollars. On January 1st, 1901, the Bank of British Columbia was acquired, and the capital was accordingly augmented to 8,000,000 dollars. The terms of this amalgamation were so favourable to the Bank of Commerce, that, as a result, an addition exceeding 500,000 dollars was made to the reserve fund, while, at the same time, the bank secured

an office of its own in London, England, and a very excellent business connection in British Columbia. In June, 1903, the capital was still further increased to 10,000,000 dollars. In that year the Banking Company of Halifax (N.S.) was acquired. The Halifax Banking Company had a long and honourable record, and by its absorption the Bank of Commerce obtained a good hold in the maritime provinces. In June, 1906, the Merchants' Bank of Prince Edward Island was absorbed, but this did not necessitate



MR. BYRON E. WALKER,
President of the Canadian Bank of Commerce.

any increase of the capital, as a cash price was paid for the undertaking.

At the present time the paid-up capital amounts to £2,054,000. All through its history the directors have been steadily building up a substantial "rest" account, and at the present time it amounts to no less than £1,027,397. But perhaps the growth of the deposits shows more clearly than anything else the estimation in which the bank is held.

The following are the figures :—

| | Dols. | | Dols. |
|-------------------|---------------|-----------------|---------------|
| June 30th, 1870.. | .. 3,442,423 | *May 31st, 1901 | .. 48,004,600 |
| „ 1875.. | .. 7,816,086 | Nov. 30th, 1901 | .. 51,679,365 |
| „ 1880.. | .. 11,106,627 | Nov., 1902 | .. 53,923,287 |
| „ 1885.. | .. 10,480,059 | † „ 1903 | .. 62,783,655 |
| May 31st, 1890.. | .. 12,493,883 | „ 1905 | .. 74,373,490 |
| „ 1895.. | .. 17,636,489 | ‡May 31st, 1906 | .. 76,114,850 |
| „ 1900.. | .. 29,680,269 | Nov. 30th, 1906 | .. 87,152,536 |

If we take the past five years the following striking results are obtained :—

| | Capital. | Reserve. | Deposits. | Current Loans and Discounts. | Net Earnings. | Per- centage to Capital. |
|------|-----------|-----------|------------|---------------------------------------|------------------|-----------------------------------|
| | £ | £ | £ | £ | £ | |
| 1895 | 1,232,000 | 247,000 | 3,624,000 | 3,353,000 | 90,000 | 7 $\frac{3}{8}$ |
| 1903 | 1,787,000 | 616,000 | 12,900,000 | 10,394,000 | 206,000 | 11 $\frac{1}{2}$ |
| 1904 | 1,787,000 | 719,000 | 14,478,000 | 10,573,000 | 231,000 | 12 $\frac{7}{8}$ |
| 1905 | 2,054,000 | 924,000 | 15,282,000 | 13,213,000 | 282,000 | 13 $\frac{3}{4}$ |
| 1906 | 2,055,000 | 1,027,000 | 17,908,000 | 16,295,000 | 358,000 | 17 $\frac{1}{2}$ |

If the past twenty years are taken as a basis of comparison, the following interesting results are obtained—they were given by Mr. Cox at a meeting of the shareholders at Toronto. In the twenty years the paid-up capital has been increased from 6,000,000 dollars to 10,000,000 dollars; the “rest” or surplus account from 500,000 dollars to 5,000,000 dollars; the net profits in 1887 were 606,715 dollars, as compared with 1,741,125 dollars for 1906; the notes in circulation have risen from 2,390,732 dollars to 9,199,204 dollars; the total deposits, from 9,895,040 dollars to 87,152,536 dollars; the current loans, from 15,381,180 dollars to 88,304,623 dollars; and the total assets, from 19,574,094 dollars to 113,545,960 dollars.

At the conclusion of the first year's operations a dividend of 8 per cent. was paid, and this distribution was maintained for a number of years. For a brief interval following this 10 per cent. was paid, but after the period of severe financial distress which set in about 1878 the directors reduced the annual distribution to 7 per cent. per annum. The dividend has remained at this figure ever since until this year, when a bonus of 1 per

* Amalgamation of the Bank of British Columbia, January, 1901.

† Amalgamation of the Halifax Banking Company, June, 1903.

‡ Amalgamation of the Merchants' Bank of Prince Edward Island.

cent. was paid, and from official statements which have been recently made it is clear that 8 per cent., paid quarterly, will be the future distribution.

The figures for the year ending November 30th, 1906, will, I think, be regarded as being of a wonderful character :—

LIABILITIES.

| | £ | s. | d. | £ | s. | d. |
|---|------------|----|----|--------------------|-----------|----------|
| Notes of the Bank in circulation .. | | | | 1,890,247 | 10 | 9 |
| Deposits not bearing interest .. | 4,649,362 | 19 | 2 | | | |
| Deposits bearing interest, including interest accrued to date | 13,258,692 | 11 | 1 | | | |
| | | | | 17,908,055 | 10 | 3 |
| Balances due to other banks in Canada | | | | 36,497 | 19 | 11 |
| Balances due to agents in Great Britain | | | | 81,941 | 8 | 5 |
| Balances due to other banks in foreign countries | | | | 218,578 | 19 | 0 |
| Dividends unpaid | | | | 102 | 18 | 8 |
| Dividend No. 9, payable December 1st | | | | 71,917 | 16 | 2 |
| Bonus, 1 per cent., payable December 1st | | | | 20,547 | 18 | 11 |
| Capital paid up | 2,054,794 | 10 | 5 | | | |
| Rest | 1,027,397 | 5 | 3 | | | |
| Balance of profit and loss account carried forward | 21,279 | 19 | 0 | | | |
| | | | | 3,103,471 | 14 | 8 |
| | | | | <u>£23,331,361</u> | <u>16</u> | <u>9</u> |

ASSETS.

| | | | | | | |
|---|-----------|---|----|--------------------|-----------|----------|
| Coin and bullion | 830,436 | 6 | 5 | | | |
| Dominion notes | 1,219,522 | 4 | 10 | | | |
| | | | | 2,049,958 | 11 | 3 |
| Deposit with Dominion Government for security of note circulation | | | | 87,832 | 3 | 10 |
| Notes of and cheques on other banks | | | | 896,142 | 15 | 1 |
| Balances due by other banks in Canada | | | | 8,010 | 18 | 6 |
| Balances due by agents in Great Britain | | | | — | | |
| Balances due by agents of the Bank and other banks in foreign countries | | | | 505,619 | 5 | 7 |
| Government bonds, municipal and other securities .. | | | | 1,274,271 | 19 | 6 |
| Call and short loans | | | | 1,849,601 | 14 | 7 |
| | | | | 6,671,437 | 8 | 4 |
| Other current loans and discount | | | | 16,295,183 | 18 | 1 |
| Overdue debts (loss fully provided for) | | | | 25,851 | 16 | 5 |
| Real estate (other than Bank premises) | | | | 18,384 | 13 | 9 |
| Mortgages | | | | 7,671 | 18 | 3 |
| Bank premises | | | | 267,123 | 5 | 9 |
| Other assets | | | | 45,708 | 16 | 2 |
| | | | | <u>£23,331,361</u> | <u>16</u> | <u>9</u> |

The net profits for the year ending November 30th, 1906, after providing for all bad and doubtful debts, amounted to £357,765 9s. 10d. This, compared with £282,774 for the previous year, shows an increase of £7,499 9s. 10d. Dividends amounting to 7 per cent. and a bonus of 1 per cent. have been paid to the shareholders during the year, and a sum of £102,739 14s. 6d. transferred to the "rest" account. The balance carried forward is upwards of £8,000 in excess of the amount brought forward into the account from the previous year; £70,157 has been written off the bank premises, and a sum of £5,136 has been subscribed to the San Francisco Relief Fund.

The following comparison of the manner in which the profits have been distributed during the past two years will be of interest :

| | 1906. £ | 1905. £ |
|---|--------------------------|--------------------|
| Net profits for year ended November 30th, after providing for all bad and doubtful debts .. | 357,765 | 282,774 |
| Premium on new stock | — | 116,095 |
| | <hr/> | <hr/> |
| Dividend (8 %) | 357,765 164,383 (7 %) | 398,869 137,010 |
| | <hr/> | <hr/> |
| Written off bank premises | 193,382 70,158 | 261,859 45,048 |
| | <hr/> | <hr/> |
| Transfers to pension fund | 123,224 11,301 | 216,811 5,137 |
| | <hr/> | <hr/> |
| Transferred to rest account | 111,923 102,740 | 211,674 205,480 |
| | <hr/> | <hr/> |
| Brought forward | 9,183 12,097 | 6,194 5,903 |
| | <hr/> | <hr/> |
| Carried forward | <u>£21,280</u> | <u>£12,097</u> |

Personally, I formed the opinion that, great as has been the progress of the bank in the past, the future has still greater successes in store. All through Canada the best strategical points have been occupied by their branches. It seemed to me during my visit as difficult to get away from its branches as it was to escape from the Canadian Pacific Railway and its multitudinous interests. This will be understood when I mention that at the present time the bank has the following branches :—Ontario, 58 ; Quebec, 4 ; Nova Scotia, 13 ; New Brunswick, 1 ; Prince Edward-Island, 5 ; Manitoba, 22 ; Saskatchewan, 21 ; Alberta, 25 ; British Columbia, 16 ; Yukon, 2 ; United States, 6 ; London (England), 1 —in all, 174, against 35 in 1887.

As an instance of the promptitude with which the bank acts. I may mention that as soon as the importance of Cobalt was recognised a ready-made bank building was taken to pieces, several hundred miles away, and immediately transported in sections to the mining camp. Almost before the inhabitants were aware of its arrival they awoke to find quite an imposing edifice in their midst!



WINNIPEG OFFICE OF THE CANADIAN BANK OF COMMERCE.

Like the Bank of Montreal, the Bank of Commerce has been successful in obtaining the services of many able and brilliant financiers. The founder was the Hon. William McMaster. To his enthusiasm and belief in the future of Canada must be ascribed the very excellent start made by the bank in its early history.

During his management the capital of the bank quickly rose to 6,000,000 dollars, and under his able tuition many of the most prominent men in the banking world of Canada to-day had their early training.

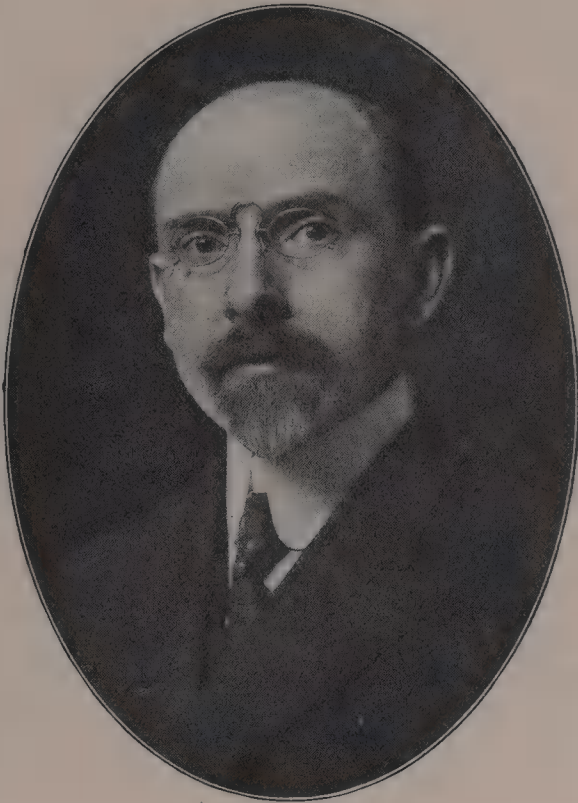
But standing pre-eminently above all the men who have ably served the bank is unquestionably the name of Mr. B. E. Walker, the late general manager, and now the president of the bank. The position Mr. Walker occupies in the banking world is almost unique, as his reputation as a banker is as great in the United States as it is in Canada. He is also widely known and respected in banking circles in this country. But Mr. Walker is not only



LONDON OFFICE OF THE CANADIAN BANK OF COMMERCE.

a great financier in the ordinary acceptation of the term ; he has wonderful organising powers, tremendous energy, and is the possessor of a magnetic personality, which ensures him the entire devotion of his subordinates. To this latter faculty, no doubt, must be ascribed the unfailing success which has attended every fresh extension of the bank's operations. As a writer on banking subjects Mr. Walker has probably not his equal on the continent of America, and as a public speaker he has shown that he has a grasp of the politico-economic conditions of Canada possessed by very few men. He is fortunate in having the support of official colleagues whose high capacity and unremitting zeal are acknowledged on all hands.

Second to Mr. Walker must be mentioned Mr. Alexander Laird, who has been the assistant general manager, and who now has succeeded Mr. Walker as general manager. His appointment is very popular amongst the supporters of the bank, as he is known to be a sound banker, an indefatigable worker, and a man who can be depended upon in every respect to worthily succeed his late chief in the honourable position of general manager.



Mr. E. R. WOOD,

A Director of the Canadian Bank of Commerce, and Managing Director of the Central Canada Loan and Savings Company.

The directorate, at the recent meeting of shareholders, was strengthened by the election of Mr. E. R. Wood, who is at the head of several important financial undertakings in the city of Toronto. Amongst these may be mentioned the Central Canada Loan and Savings Company and the Dominion Securities Corporation. Mr. Wood has probably a wider knowledge of and sounder judgment in investment business than any man in Canada. He enjoys not only a high reputation amongst the commercial community for his business acumen, but for his geniality and sterling

qualities. Mr. Z. A. Lash, K.C., was also elected on the board. I had not the pleasure of personally meeting Mr. Lash during my visit to Canada, but I know that he has had long experience in various public appointments, and is closely connected with many of the most successful business enterprises of Canada.

Since the absorption of the Bank of British Columbia, Mr. S. Cameron Alexander has been the manager of the London branch



Mr. S. CAMERON ALEXANDER,
London Manager of the Canadian Bank of Commerce.

in Lombard Street. Personally he is a charming gentleman, and under his able guidance the Canadian Bank of Commerce has built up a very large business in this country. He is assisted by Mr. H. V. F. Jones, who is regarded by many as one of the promising young men in the banking world; and also by Mr. Adam Stodart, who has a wide experience both on the Pacific Coast and in London.

Before concluding this chapter I should like here to express my indebtedness for the numerous courtesies I received at the hands of the officials of the Canadian Bank of Commerce. Before

leaving London I obtained a letter of credit for a modest amount from the London branch of this bank, and was informed at the same time that my letters could be received by any of the bank's Canadian offices. I accordingly arranged that my mail should be addressed to me at the Montreal head office of the bank. On arriving in Canada the officials immediately offered, apparently as a matter of course, to forward my letters to me as they were received to whatever part of Canada I happened to be in at the moment. The result of this was that I was absolutely a free agent to go whither I would, always being assured that I should find my letters awaiting me. Nor was this all; the officials at every point seemed to accept it as part of their ordinary duty to furnish me with any information and assistance I required, even upon the most trivial matters. Needless to say, the path of a visitor to Canada is rendered doubly smooth by the knowledge that in every city or town throughout the breadth of the wide Dominion these convenient facilities are always awaiting him.

CONCLUSIONS :

That the Canadian Bank of Commerce is a striking example of what a financial institution in a new country can become by a combination of enterprise and caution.

That its progress and development from small beginnings have been remarkable.

That it has associated with its administration and management some of the ablest financiers and most capable business men in Canada.

That its President is a banker of international reputation, and is supported by official colleagues of high capacity.

That its London management is in very able hands and is attaining deservedly successful results.

CHAPTER IV.

HIGH-YIELDING CANADIAN SECURITIES.

THE ALBERTA RAILWAY AND IRRIGATION COMPANY.—BRITISH COLUMBIA ELECTRIC RAILWAY COMPANY.—CANADIAN GENERAL ELECTRIC COMPANY, LIMITED.—DOMINION COTTON MILLS COMPANY, LIMITED.—ELECTRICAL DEVELOPMENT COMPANY OF ONTARIO, LIMITED.—MONTREAL LIGHT, HEAT AND POWER COMPANY.—GRAND TRUNK WESTERN SECOND MORTGAGE BONDS.—SHAWINIGAN WATER AND POWER COMPANY, LIMITED.—TRUST AND LOAN COMPANY OF CANADA.—WESTERN CANADA CEMENT AND COAL COMPANY, LIMITED.—WESTERN DOMINION COLLIERIES COMPANY, LIMITED.—WHITE PASS AND YUKON RAILWAY.

IT is a frequent complaint of investors that the prices of the leading Canadian securities have appreciated to such an extent that the yield offered is inadequate in these days of high interest. To meet this want I have compiled a list of securities, which return a yield of $4\frac{1}{2}$ per cent. and upwards, with in many cases a good prospect of increase in capital value.

Taking the various companies in the order in which they appear in the table on page 469, the Alberta Railway and Irrigation Company has an issued share capital of 3,250,000 dollars. There are also 1,250,000 dollars Four per Cent. Prior Lien Debentures and 3,250,000 dollars Five per Cent. Non-Cumulative Debenture stock, redeemable at any time on three months' notice, with interest payable annually out of the surplus revenue of each year. It is this security which is quoted in the appended list. Interest on these debentures has been regularly paid at the full rate, but it will be observed that the semi-annual payments are of unequal amounts, the interim on July 1st being 2 per cent., and the final in October 3 per cent., both actual.

Last year was a rather untoward one for the fortunes of this company, owing to the fact that in consequence of a strike the collieries were shut down for the last four months of the financial year. The revenue from collieries, railways, canals, and the profit on land sales, &c., totalled 212,251 dollars, while the interest charges for the year were 212,034 dollars, after payment of which the surplus carried forward was 47,225 dollars. The land sales



Sir EDWARD PAULET TRACEY,
Of Messrs. Sperling & Co., Stockbrokers.

during the year ending June 30th last aggregated 171,305 acres, at an average of about 5.48 dollars per acre. The estimated net profit from these sales was 343,960 dollars, of which only 4,588 dollars actual cash received was included in the revenue account to June 30th. The company then owned 762,186 acres of land, of which about 155,000 acres were irrigable and 607,186 acres were non-irrigable. For irrigated land near the railway the

company asks 20 dollars per acre and upwards, according to location, and for winter wheat lands 5 dollars per acre and upwards. It is evident, therefore, that there is a good prospect of the average price obtained last year being largely exceeded. In addition, the company owns town lots in Lethbridge and Raymond, and has acquired, jointly with the Canadian Pacific Railway, an interest in 100,000 acres. Of this land 57,920 acres were sold last year, this company's proportion of profit being equal to 2.10 dollars per acre. The net amount owing to the Alberta Company at June 30th last in respect of lands sold was 1,480,212 dollars, payable by deferred instalments, with 6 per cent. interest on the unpaid purchase money.

The British Columbia Electric Railway Company has a capital of £1,500,000, of which £300,000 is in Perpetual Preference stock and shares, £300,000 in Preferred Ordinary, £400,000 in Deferred Ordinary stock, and £500,000 in new £1 shares. The latter have not yet been issued. The Preference ranks first for 5 per cent. cumulative dividends; the Preferred Ordinary next receives 5 per cent. non-cumulative, and, after payment of 7 per cent. on the Ordinary, surplus profits are to be divided between the Preferred and Deferred, subject to the proviso that the directors are to take 10 per cent. of the profits after payment of 5 per cent. on the issued capital. The Preference and Preferred stocks have a priority as to capital, the former ranking first. There are also £238,000 of Four and a-Half per Cent. First Mortgage Debentures and £220,000 Four and a-Half per Cent. Vancouver Power Debentures. The accounts are made up to June 30th, and submitted in November, an interim dividend being paid in April on the Deferred. For the last two years the Deferred has received 6 per cent., but it appears certain that a higher distribution will be received for the current year; 7 per cent. was paid for half year ending December 31st, 1906, in April. The gain in net earnings to June 30th was 129,614 dollars, equal to £26,725, or an additional 6 per cent. on the Deferred Ordinary. From July 1st to December 31st a further net increase of £18,391 was secured.

The Canadian General Electric Company, Limited, is capitalised at 5,000,000 dollars, 300,000 dollars being in Six per Cent. Preferred and 4,700,000 dollars in Common shares. There are also mortgages, bonds, &c., for 186,400 dollars. The accounts are made up to December 31st, and submitted in Toronto in March. Dividends are paid quarterly, the rate for the eight years to 1906 having been 10 per cent. The company is an amalgamation of the principal Canadian concerns manufacturing electrical appliances. The last profit and loss account showed an operating profit of 853,675 dollars, and at the end of 1906 the cash and

current assets amounted to 4,747,041 dollars, or nearly equal to the entire capitalisation. The business has increased very rapidly, and there is every reason to believe that it will continue progressive, which seems to be confirmed by the 1906 report.

The Dominion Cotton Mills Company, Limited, has an authorised capital of 10,000,000 dollars, of which 3,033,000 dollars Common stock is in issue. The Preferred stock authorised is



MR. CHARLES A. HANSON,
of Messrs. Coates, Son & Co., Stockbrokers.

1,000,000 dollars, 173,900 dollars issued, which has, excepting 900 dollars, been exchanged for Debentures for the same nominal amount. There are £308,200 First Mortgage Four and a-Half per Cent. 20-year Sterling Debentures authorised and issued, of which £271,200 are outstanding. They are repayable on January 1st, 1916, with the option of redemption on six months' notice at 110. The company owns ten cotton mills in the Dominion.

The capital of the Electrical Development Company of Ontario, Limited, is 6,000,000 dollars, and there are 10,000,000 dollars Five per Cent. First Mortgage Gold bonds of 500 dollars each, of which 8,000,000 dollars has been issued. The bonds are repayable on March 1st, 1933, in Toronto, or New York, or in London at £102 14s. 10d. per bond, while the company may repay the principal on any interest date during the first ten years at 10 per cent. premium, *plus* accrued interest. The bonds are secured on all the company's assets, and a sinking fund, commencing in 1911, is provided of 1 dollar per annum for each electrical h.-p. sold and paid for during the preceding year. Now that the company has successfully "harnessed Niagara," as already described in another chapter, it is estimated to be earning at the rate of at least 800,000 dollars per annum. Interest on the bonds in issue requires 400,000 dollars per annum.

The capital of the Montreal Light, Heat and Power Company is 17,000,000 dollars, and the bonded debt is 8,464,000 dollars. All of the gas and electricity (except for one or two small block plants) used in the City of Montreal and the surrounding suburbs is supplied by this company; also the electric power for the Montreal Street Railway and many other undertakings. The accounts are made up annually to April 1st. Since the formation of the company to April, 1906, the Common shares received quarterly dividends at the rate of 4 per cent. per annum. The dividend rate was increased in August to 5 per cent., and a similar rate was paid in November. Owing to the largely increased demand for power the capacity of the power plant is being increased to 15,000 h.-p.

There are £1,500,000 Second Mortgage Four per Cent. Fifty year Income bonds of the Grand Trunk Western. Interest is contingent on earnings, and the principal is redeemable in 1950, with the option of redemption at 85 till 1910, on the usual six months' notice. For each of the ten years to June 30th, 1905, interest was 1 per cent., but for 1905-6 bonds received their full 4 per cent.

The Shawinigan Water and Power Company, Limited, whose extensive operations I describe in another chapter, is known here by the issue of 2,000,000 dollars Five per Cent. Consolidated First Mortgage bonds of 500 dollars or £102 14s., and 1,000 dollars or £205 9s. 8d. each. These bonds form part of a total authorised issue of 5,000,000 dollars, all of which are issued. The bonds are repayable after January 1st, 1909, at 110. Beginning on that date, the company is to deposit annually an amount equal to 1 per cent. of the total amount of bonds then outstanding, and when the amount is equal to 25,000 dollars it is to be applied to redeeming bonds by purchase at less than 110, but if above

that figure the sum is to be devoted to the purchase of Canadian Government bonds. The plant now in operation and covered by these bonds has a capacity of 60,000 h.-p., from the sale of which the company's income will be increased to over £95,000 per annum, with practically no additional expense. The total capacity is 100,000 h.-p.

The Trust and Loan Company of Canada has a capital of £1,500,000 in £20 shares, of which £325,000 has been received, 50,000 shares having £5 paid, and 25,000 £3 paid. There are also loans on Debentures to the amount of £1,096,678. The accounts are made up to March 31st and September 30th, and will be submitted in May. For the ten half-years to September, 1905, the shares received 7 per cent., and to March and September, 1906, 8 per cent. A new issue of 25,000 shares has recently been made.

The Western Canada Cement and Coal Company, Limited, has a share capital of 1,250,000 dollars, with £225,000 Six per Cent. First Mortgage bonds to bearer. The bonds are repayable on December 31st, 1915, at par from a redemption fund provided by an annual sum equal to $12\frac{1}{2}$ per cent. of the total issue, calculated at 105, with option of redemption at any time on the usual notice. The works, which are described in another chapter, and were to be completed early in this year, will have a capacity of 1,400 barrels of cement a day. They are situated at Exshaw, Alberta, on the main line of the Canadian Pacific Railway. Bond interest has been regularly met.

The Western Dominion Collieries Company, Limited, is capitalised at £200,000, and there are £100,000 Six per Cent. First Mortgage Debentures. Those debentures which are outstanding on July 1st, 1912, are to be redeemed at 102 within 25 years by annual drawings. The company has the option of redemption at any time on giving the usual notice, at 102. The prospectus stated that net profits for the three years and ten months ending February 28th, 1906, averaged £8,826 per annum, the profits for the last ten months of that period having been £10,775.

The White Pass and Yukon Railway has a share capital of £1,700,000 in £10 shares. There are also £746,702 Five per Cent. Consolidated First Mortgage Debentures, which mature on December 31st, 1930, against which date a sinking fund has been provided. The Ordinary received 4 per cent. for 1903-4, and for 1904-5 and 1905-6 they got 5 per cent.

The tables on pages 466-468 present a quantity of instructive data respecting Canadian Miscellaneous Stocks, active and inactive, and the table on page 469 shows the yields of the specific securities just described:—

| Range for year 1905. | | Range for year 1906. | | STOCK. | |
|----------------------|------|----------------------|-------|--------|--------|
| High. | Low. | High. | Low. | Date. | |
| 170½ | 155½ | 190½ | Oct. | 169½ | Jan. |
| 270 | 248 | 283 | Jan. | 262½ | *Dec. |
| 219 | 213 | 233 | May | 210 | Dec. |
| 242 | 226 | 254½ | May | 225 | Dec. |
| 172½ | 160 | 176 | Oct. | 160½ | Jan. |
| .. | .. | 202½ | Mar. | 192 | Dec. |
| 230 | 220 | 230 | Mar. | 204½ | †Dec. |
| 261 | 250 | 261 | Feb. | 252½ | Sept. |
| 285 | 261¼ | 297½ | Nov. | 273 | July |
| 230 | 215 | 233 | May | 222 | Dec. |
| 143 | 127½ | 145 | June | 139½ | Jan. |
| 229 | 209¼ | 247½ | Nov. | 222 | Mar. |
| 132½ | 131½ | 155¼ | Mar. | 133 | Dec. |
| 238 | 218 | 250¼ | June | 223 | †April |
| 246 | 226 | 251 | Feb. | 222 | Dec. |
| 146 | 133 | 155 | Mar. | 138½ | *Dec. |
| 147¼ | 139¾ | 158 | Oct. | 143¼ | Jan. |
| 177 | 131 | 201 | Dec. | 155¾ | May |
| 96½ | 75½ | 102 | Feb. | 79¼ | Dec. |
| 41¾ | 10⅞ | 21 | Aug. | 16¾ | July |
| 110¼ | 100 | 108 | Jan. | 100 | Oct. |
| 38 | 14 | 50 | Aug. | 35 | Mar. |
| 97¾ | 79 | 97¾ | May | 79 | Jan. |
| .. | .. | 101½ | Feb. | 88½ | *Dec. |
| 145 | 189½ | .. | .. | .. | .. |
| 240½ | 212 | 284 | Aug. | 211 | †Dec. |
| 83 | 57½ | 110¼ | Nov. | 80½ | Jan. |
| .. | .. | 33¼ | Feb. | 27 | *Dec. |
| 76½ | 61½ | 88¼ | Oct. | 69¾ | Jan. |
| .. | .. | 48 | Nov. | 38½ | Oct. |
| 142¾ | 106½ | 146 | Feb. | 125 | Oct. |
| 35½ | 21 | 36¼ | Jan. | 25 | Dec. |
| 112½ | 103 | 126 | Mar. | 112 | *Dec. |
| .. | .. | 95 | Nov. | 88½ | *Dec. |
| 95¾ | 78 | 92 | Mar. | 80 | Dec. |
| 122½ | 104¾ | 122¼ | Jan. | 102½ | Dec. |
| 192½ | 114½ | 190 | Mar. | 160 | Oct. |
| 130 | 100 | 148 | Dec. | 120 | Jan. |
| 162 | 149 | 158¾ | Feb. | 145 | *Dec. |
| 214 | 206 | 209 | Mar. | 200 | *Oct. |
| 60 | 37 | 77½ | June | 57¾ | Jan. |
| 76½ | 71¼ | 76¼ | June | 68 | Dec. |
| 93 | 77¾ | 99½ | Nov. | 86 | May |
| 70 | 66½ | 70 | Jan. | 47½ | Oct. |
| 162¼ | 145½ | 171 | Nov. | 152 | July |
| 178 | 136¾ | 155 | Jan. | 130 | Oct. |
| 28¾ | 16¾ | 34¼ | April | 20½ | Nov. |
| 75¾ | 60¼ | 83½ | May | 60 | Nov. |
| 86½ | 59¾ | 84½ | Feb. | 58 | Nov. |
| 119 | 114 | 122 | Mar. | 112 | Nov. |
| 104½ | 80 | 109¾ | Mar. | 95¼ | Nov. |
| 118 | 88 | 100 | Sept. | 89 | Jan. |
| 122 | 110 | 115 | Sept. | 108 | Dec. |
| 110 | 60 | 114 | Jan. | 97 | Oct. |
| 119 | 99 | 115 | Feb. | 106 | Nov. |
| 69½ | 51¼ | 74½ | Feb. | 60 | May |
| 122 | 109¾ | 125 | Aug. | 118 | *Jan. |
| .. | .. | .. | .. | .. | .. |
| 140 | 124½ | 130 | Jan. | 123 | Dec. |
| .. | .. | .. | .. | .. | .. |

BANKS :

| |
|----------------------|
| Commerce |
| Dominion |
| Hamilton |
| Imperial |
| Merchants |
| Metropolitan |
| Molsons |
| Montreal |
| Nova Scotia |
| Ottawa |
| Quebec |
| Royal |
| Sovereign |
| Standard |
| Toronto |
| Traders |
| Union |

TRANSPORTATION :

| |
|-----------------------------------|
| Canadian Pacific Railway .. |
| Detroit United |
| Duluth |
| Halifax Electric |
| Havana Electric |
| Havana Electric, preferred .. |
| Illinois Traction, preferred .. |
| Minn., St. P. and Sault Ste. Mar. |
| Montreal Street |
| Northern Navigation |
| Northern Ohio Traction |
| Richelieu and Ontario |
| Rio de Janeiro |
| Sao Paulo |
| Toledo Railway |
| Toronto Railway |
| Tri-City, preferred |
| Trinidad Electric |
| Twin City |
| Winnipeg Electric |
| St. Lawrence and Chicago St. |
| Nav. Co. |

TELEGRAPH, LIGHT AND POWER :

| |
|------------------------------|
| Bell Telephone |
| Consumers Gas |
| Mackay, common |
| Mackay, preferred |
| Montreal Power |
| Mexican Light and Power Co. |
| Toronto Electric Light |

INDUSTRIALS AND MISCELLANEOUS

| |
|---------------------------------|
| Canadian General Electric .. |
| Dominion Steel, common .. |
| Dominion Steel, preferred .. |
| Dominion Coal |
| Dominion Coal, preferred .. |
| Dominion Textile, preferred .. |
| Lake of Woods Milling |
| Lake of Woods Milling, prefer |
| Montreal Steel |
| Montreal Steel, preferred .. |
| Nova Scotia Steel, common .. |
| Nova Scotia Steel, preferred .. |
| Ogilvie Flour |
| Ogilvie Flour, preferred .. |
| Nipissing Mines Co. (a) .. |

* Ex-div.

† Ex-allotment.

STOCKS.

Montreal and Toronto Stock Exchanges.

Stocks.

| Par value. | Outstanding Common Stock. | Outstanding Preferred Stock. | Bonds. | Reserve. | Last Dividend. | |
|---------------|---------------------------------|------------------------------------|------------|-------------|----------------|--------------|
| | | | | | Date. | Per cent. |
| 50 | 10,000,000 | .. | .. | 5,000,000 | 1st Dec. s.-a. | 3½ |
| 50 | 3,000,000 | .. | .. | 3,900,000 | and bonus | 1 |
| 100 | 2,470,210 | .. | .. | 2,470,210 | 1st Apr. q. | 3 |
| 100 | 4,926,000 | .. | .. | 4,674,991 | 1st Mar. q. | 2½ |
| 100 | 6,000,000 | .. | .. | 3,600,000 | 1st Feb. q. | 2½ |
| 100 | 1,000,000 | .. | .. | 1,000,000 | 1st Dec. q. | 2 |
| 100 | 3,180,820 | .. | .. | 3,000,000 | 1st Apr. q. | 2 |
| 100 | 14,400,000 | .. | .. | 11,000,000 | 1st Apr. q. | 2½ |
| 100 | 3,000,000 | .. | .. | 5,250,000 | 1st Mar. q. | 3½ |
| 100 | 3,000,000 | .. | .. | 3,000,000 | 1st Apr. q. | 3 |
| 100 | 2,500,000 | .. | .. | 1,150,000 | 1st Mar. s. | 5 |
| 100 | 3,900,000 | .. | .. | 4,390,000 | 1st Mar. q. | 1½ |
| 100 | 3,986,680 | .. | .. | 1,255,950 | 1st Apr. q. | 2½ |
| 50 | 1,505,675 | .. | .. | 1,605,675 | 16th Feb. q. | 1½ |
| 100 | 3,975,190 | .. | .. | 4,475,190 | 1st Mar. q. | 3 |
| 100 | 4,332,406 | .. | .. | 1,900,000 | 1st Mar. s. | 5 |
| 100 | 3,000,000 | .. | .. | 1,500,000 | 1st Apr. q. | 1¾ |
| | | | | | 1st Dec. s. | 4 |
| 100 | 121,680,000 | 37,853,333 | 89,200,459 | .. | 1st Apr. s. | 3½ |
| 100 | 12,500,000 | .. | 20,387,000 | 1,431,155 | 1st Feb. q. | 1½ |
| 100 | 12,000,000 | 10,000,000 | .. | .. | .. | .. |
| 100 | 1,350,000 | .. | 600,000 | 195,000 | 1st Apr. q. | 1½ |
| 100 | 7,500,000 | .. | 8,061,036 | .. | .. | .. |
| 100 | .. | 5,000,000 | .. | .. | 15th Apr. q. | 1 |
| 100 | 5,810,000 | 2,240,000 | 11,241,500 | .. | 1st Apr. q. | 1½ |
| 100 | 14,000,000 | 7,000,000 | 44,295,000 | .. | 15th Oct. s. | 2 |
| 100 | 9,000,000 | .. | 2,473,333 | 524,770 | 1st Feb. q. | 2½ |
| 100 | 840,000 | .. | .. | 71,184 | 19th Jan. a. | 6 + 1½ |
| 100 | 6,900,000 | .. | 6,375,000 | .. | 15th Mar. q. | 1½ |
| 100 | 3,132,000 | .. | 222,406 | 254,660 | 1st Mar. q. | 1¾ |
| 100 | 21,993,900 | .. | 20,900,000 | .. | .. | .. |
| 100 | 7,500,000 | .. | 5,500,000 | .. | 1st Apr. q. | 2 |
| 100 | 12,000,000 | .. | 10,854,000 | .. | 2nd Nov. s. | 1 |
| 100 | 8,000,000 | .. | 3,613,000 | 1,918,322 | 1st Apr. q. | 1½ |
| 100 | 9,000,000 | 2,600,000 | .. | 6,464,000 | 1st Nov. q. | 1½ |
| 100 | 1,164,000 | .. | .. | 720,000 | 10th Apr. q. | 1¾ |
| 100 | 18,000,000 | 3,000,000 | 15,566,000 | 1,010,205 | 15th Feb. q. | 1¾ |
| 100 | 4,000,000 | .. | 3,500,000 | 686,934 | 3rd Apr. q. | 2 |
| 100 | 563,300 | .. | 115,996 | .. | 1st Jan. a. | 10 |
| 100 | 9,980,800 | .. | 2,325,000 | 3,382,879 | 15th Jan. q. | 2 |
| 50 | 2,500,000 | .. | .. | 973,155 | 1st Feb. q. | 2½ |
| 100 | 41,380,400 | .. | .. | .. | 1st Apr. q. | 1 |
| 100 | .. | 50,000,000 | .. | .. | 1st Apr. q. | 1 |
| 100 | 17,000,000 | .. | 846,000 | .. | 15th Feb. q. | 1¾ |
| 100 | 13,600,000 | .. | 12,000,000 | .. | .. | .. |
| 100 | 2,997,900 | .. | 1,000,000 | 500,000 | 1st Apr. q. | 2 |
| 100 | 4,700,000 | 300,000 | .. | 1,671,082 | 31st Dec. q. | 2½ |
| 100 | 20,000,000 | .. | 10,044,833 | .. | .. | .. |
| 100 | 5,000,000 | .. | .. | .. | .. | .. |
| 100 | 15,000,000 | .. | .. | .. | .. | .. |
| 100 | 3,000,000 | .. | 5,691,198 | .. | 1st Feb. s. | 3½ |
| 100 | 7,500,000 | 1,940,000 | .. | b 6,966,660 | 15th Jan. q. | 1¾ |
| 100 | 2,000,000 | .. | .. | .. | 3rd Oct. s. | 3 |
| 100 | .. | 1,500,000 | .. | .. | 28th Feb. q. | 1¾ |
| 100 | 700,000 | .. | .. | .. | 8th Jan. bal. | 4½ |
| 100 | .. | 800,000 | .. | .. | 8th Jan. q. | 1¾ |
| 100 | 5,000,000 | .. | .. | b 3,838,000 | .. | .. |
| 100 | .. | 1,030,000 | .. | .. | 15th Jan. q. | 2 |
| 100 | 1,250,000 | .. | 1,000,000 | .. | Sept. a. | 7 |
| 100 | .. | 2,000,000 | .. | .. | 1st Mar. q. | 1¾ |
| 5 | 6,000,000 | .. | .. | .. | 20th Jan. q. | 3 x 2 |

a—Quotations per \$5 share.

b—Means Bonds.

Canadian Stocks—continued.

Inactive Stocks.

| Stock. | Par Value. | Common Stock Out-standing. | Bonds or Preferred Stock Out-standing. | Reserve. | Last Dividend. | | Range for year 190 |
|---|------------------|----------------------------|--|-----------|--|-----------|--------------------|
| | | | | | Date. | Per cent. | High. Low. |
| BANKS : | | | | | | | |
| British North America. . . . | 243 | 4,866,666 | .. | 2,141,333 | 5th Oct. s. 3 | | 146 $\frac{1}{2}$ |
| Eastern Townships | 100 | 2,945,400 | .. | 1,860,010 | 1st Apr. q. 2 | | 163 $\frac{1}{2}$ |
| Hochelaga | 100 | 2,000,000 | .. | 1,600,000 | 1st Mar. q. 2 | | 163 |
| Nationale | 30 | 1,653,525 | .. | 600,000 | 1st Mar. q. 1 $\frac{3}{4}$ | | 124 |
| New Brunswick | 100 | 707,200 | .. | 1,191,830 | 1st Apr. q. 3 | | .. |
| LOAN AND TRUST : | | | | | | | |
| Agricultural Loan | 50 | 630,200 | .. | 283,000 | 2nd Jan. s. 3 | | .. |
| Canada Landed | 100 | 1,004,000 | .. | 505,000 | 2nd Jan. s. 3 plus 1 | | 125 |
| Canada Permanent | 10 | 6,000,000 | .. | 2,450,000 | 1st Jan. s. 3 | | 131 |
| Central Canada | 100 | 1,500,000 | .. | 1,050,000 | 1st Apr. q. 2 | | 172 |
| Col. Investment, preferred . . | 10 | 2,398,701 | .. | 119,808 | 1st Jan. s. 3 | | 89 |
| Dominion Savings | 50 | 934,597 | .. | 90,000 | 31st Dec. s. 2 | | 73 |
| Hamilton Provident | 100 | 1,100,000 | .. | 490,000 | 2nd Jan. s. 3 | | 124 |
| Huron and Erie | 50 | 1,900,000 | .. | 1,525,000 | 2nd Jan. s. 4 $\frac{1}{2}$ | | 188 $\frac{1}{2}$ |
| Imperial Loan | 100 | 735,481 | .. | 78,720 | 2nd Jan. s. 2 $\frac{1}{2}$ | | 70 |
| Landed Banking | 100 | 700,000 | .. | 310,000 | 2nd Jan. s. 3 | | 125 |
| London and Canadian Loan . . | 50 | 1,000,000 | .. | 245,000 | 2nd Jan. s. 3 | | 111 $\frac{1}{4}$ |
| London Loan and Savings . . | 50 | 686,891 | .. | 134,000 | 1st Jan. s. 3 | | .. |
| Montreal Loan | 25 | 500,000 | .. | 400,000 | 15th Mar. s. 3 $\frac{1}{2}$ | | 138 |
| North of Scotland | £10 | £50,000 | .. | £35,000 | 5 s. plus 2 $\frac{1}{2}$ | | .. |
| National Trust | 100 | 1,000,000 | .. | 450,000 | 2nd Apr. 1 $\frac{3}{4}$ | | 157 |
| Ontario Loan and Debenture . . | 50 | 1,200,000 | .. | 685,000 | 2nd Jan. s. 3 $\frac{1}{4}$ | | 140 |
| Real Estate Loan | 40 | 373,720 | .. | 65,000 | 2nd Jan. s. 2 $\frac{1}{2}$ plus $\frac{1}{2}$ | | 90 |
| Toronto General Trusts | 100 | 1,000,000 | .. | 375,000 | 2nd Jan. s. 3 $\frac{3}{4}$ | | 160 |
| Toronto Mortgage Co. . . . | 50 | 724,550 | .. | 305,000 | 2nd Jan. s. 3 | | 115 $\frac{1}{2}$ |
| Toronto Savings | 100 | 1,000,000 | .. | 580,000 | 1st Apr. q. 1 $\frac{1}{2}$ | | .. |
| OTHER COMPANIES : | | | | | | | |
| British America Assurance . . | 25 | 848,226 | .. | 191,787 | 3 % passed | | 98 |
| British Columbia Packers, preferred | 100 | 1,511,400 | 1,270,000 | .. | 3 $\frac{1}{2}$ for 6 mos. May 20, '05 | | 80 $\frac{1}{2}$ |
| Canada Col. Cotton | 100 | 2,700,000 | b2,000,000 | .. | 15 Mar. 1 | | 60 |
| Canada Life Assurance | 400 | 1,000,000 | .. | .. | 1st Oct. 4 | | 163 |
| Canadian Converters, Ltd. . . | 100 | .. | .. | .. | Feb. q. 1 | | 60 |
| Canadian Salt | 100 | 500,000 | .. | .. | 1st Apr. q. 2 | | 110 $\frac{1}{4}$ |
| Canada North-West Land . . | 12 $\frac{1}{2}$ | 733,841 | .. | .. | a | | 500 |
| City Dairy | 100 | 565,000 | .. | 7,500 | 31st Dec. q. | | 38 |
| City Dairy, preferred | 100 | 271,620 | .. | .. | 2nd Apr. 1 $\frac{3}{4}$ | | 94 $\frac{1}{4}$ |
| Confederation Life Assocn. . . | 100 | 100,000 | .. | .. | 1st Jan. s. 7 $\frac{1}{2}$ | | 285 |
| Dominion Telegraph | 50 | 1,000,000 | .. | .. | 15th Apr. q. 1 $\frac{1}{2}$ | | 121 |
| Hamilton Electric Power, preferred | 100 | 1,700,000 | 2,895,700 | .. | 15th Jan. s. 2 $\frac{3}{4}$ | | .. |
| Imperial Life Assurance | 100 | 450,000 | .. | .. | 1st Apr. q. 1 $\frac{1}{2}$ | | 149 |
| Intercolonial Coal | 100 | 500,000 | b 242,500 | 90,474 | Mar. s. 3 $\frac{1}{2}$ | | 90 |
| Intercolonial Coal, preferred . . | 100 | .. | 219,700 | .. | Mar. s. 3 | | .. |
| Laurentide Paper | 100 | 1,600,000 | .. | .. | 1st Feb. s. 3 | | 107 $\frac{1}{2}$ |
| Laurentide Paper, preferred . . | 100 | .. | 1,200,000 | .. | 1st Apr. q. 1 $\frac{3}{4}$ | | 114 $\frac{3}{4}$ |
| London Electric | 100 | 404,610 | .. | 75,000 | 1st Dec. s. 3 | | 95 |
| London Street | 40 | 500,000 | b 550,000 | .. | 31st Dec. s. 3 $\frac{3}{4}$ | | 97 $\frac{1}{4}$ |
| Montreal Cotton | 100 | 3,000,000 | b 350,000 | .. | 15th Mar. q. 1 $\frac{3}{4}$ | | 135 |
| Montreal Telegraph | 40 | 2,000,000 | .. | .. | 15th Jan. q. 2 | | 171 |
| Niagara Navigation | 100 | 701,300 | b 111,000 | 98,000 | 2nd Jan. s. 4 | | 133 $\frac{1}{2}$ |
| Niagara, St. Cath. & Toronto . . | 100 | 925,000 | .. | .. | .. | | 80 |
| Ottawa Electric Rly. . . . | 100 | 998,200 | .. | 199,564 | 2nd Apr. q. 2 | | .. |
| Western Assurance | 20 | 1,500,000 | .. | 419,836 | passed | | 98 |
| Windsor Hotel | 100 | 600,000 | b1,100,000 | .. | Dec. s. 4 plus 1 | | 105 |

NOTE.—s.—semi-annual ; q.—quarterly ; plus—indicates bonus ; b—means bonds. a—\$12.50 per share return of capital payable March 15, 1907.

HIGH YIELDING SECURITIES: RESULTS SHOWN AT A GLANCE.

| Name of Company and Stock. | Directors. | Dividends, 1906. | | Reserve Funds. | Surplus or Carried Forward. | Highest and Lowest Prices, 1906. | | Present Price. | Yield %. |
|---|---|---------------------|--------------|---|-----------------------------|----------------------------------|------|----------------|------------------|
| | | First Half. | Second Half. | | | High. | Low. | | |
| | | % p. ann. % p. ann. | | | | | | | |
| Alberta Railway and Irrigation Co. 5 % Deb. stock. | { E. T. Galt (President), Col. K. R. B. Wodehouse (V.P.), W. Burdett-Contitt, M.P., E. S. Clouston, J. H. Dodgson, J. Galt, A. M. Nanton, W. M. Ramsay and E. Waterhouse. | 4 | 6 | — | \$47,225 (surplus) | 101½ | 94½ | 94-6 | £ s. d. 5 5 0 |
| British Columbia Electric Railway Def. Ord. | { R. M. Horne-Payne (Chairman), T. Blundell Brown, J. Buntzen (Managing), E. L. Egan-Thomas, Hon. M. R. Gifford, C.M.G., G. P. Norton and R. K. Sperling. | 6 | 6 | £68,000 | £2,619 (car. for.) | 130½ | 115 | 123-7 | 5 11 1 |
| Canadian General Electric Co. shares. | { W. R. Brock (President), H. P. Dwight (V.P.), Frederic Nicholls (Second V.P. and General Manager), Hon. Geo. A. Cox, William Mackenzie, W. D. Matthews, E. B. Osler, M.P., Hon. L. J. Forget, H. S. Holt, Robert Jaffray, Hon. J. K. Kerr, Jas. Ross, H. G. Nicholls. | 10-10 | 10-10 | \$1,900,320 (including contingent fund) | \$69,034 (car. for.) | 146½ | 132 | 128-131 | 7 15 0 |
| Dominion Cotton Mills 4½ % Debs. | { Hon. L. J. Forget, James Wilson, S. H. Ewing, C. E. Gault, Jacques Grenier, Samuel Carsley and A. B. Mole. | 4½ | 4½ | — | — | — | — | 88-90 | 5 3 0 |
| Electrical Development of Ontario 5 % bonds. | { Col. Sir H. M. Pellatt (President), Frederic Nicholls (V.P. and Managing Director), Wm. Mackenzie, Hon. Geo. A. Cox and Jas. Ross. | 5 | 5 | — | — | 92½ | 86½ | *79-81 % | 5 16 0 |
| Grand Trunk Western Railway 4 % 2nd Mort. Debentures. | { London Agent, H. H. Norman | 4 for | year | — | — | 81½ | 74 | 77-80 | 5 0 0 |
| Montreal Light, Heat and Power Co. shares. | { H. S. Holt (President), W. McLea Walbank (1st V.P.), Rodolphe Forget (2nd V.P.), Hon. L. J. Forget, Hon. R. Mackay, Lieut.-Col. F. C. Henshaw, H. Montagu Allan, C. R. Hosmer and Hon. H. B. Rainville. | 4-4 | 5-5 | \$150,000 (contingent account) | \$1,201,976 (surplus) | 103 | 92 | 94-7 | 5 4 0 |
| Shawinigan Water and Power 5 % Bonds. | { Hon. R. Mackay (President), J. N. Greenshields, K. C. T. McDougall, W. R. Warren, W. Mackenzie, John Joyce, D. Murphy, W. H. Melville, J. E. Aldred (Treasurer). | 5 | 5 | — | — | 103½ % | 99 % | 99-101 % | 5 1 0 |
| Trust and Loan Co. of Canada £20 shares, £5 paid. | { Sir V. Caillard (President), Admiral Field, C.B., Hon. S. Peel, F. H. Scott, R. Stephenson and Lord Stratheden and Campbell. | 8 | 8 | £192,794 | £23,864 | 6½ | 5½ | 5½-6½ | 6 13 3 |
| White Pass and Yukon Railway 5 % Debs. | { C. C. Macrae (Chairman), Hon. S. C. Glyn (Vice-Chairman), J. Dugdale, E. Hanson and E. F. North | 8 | 8 | — | — | 3½ | 2½ | 3-3½ | 7 7 9 |
| Do. £3 paid | | 5 | 5 | — | £14,765 (car. for.) | 102½ | 95½ | 100-102 | 5 0 0 |
| Western Canada Cement and Coal Company 6 % 1st Debs | { Sir S. Fleming (President), C. A. Irvin (V.P.), J. S. Irvin (Managing), H. Fleming (Secretary), C. S. Cape, C. C. Chipman, S. H. Fleming, F. W. G. Haultain and F. B. Dunsford. | 4 | 6 | — | — | 7 | 6 | 6½-7 xd | 7 3 0 |
| Western Dominion Colonies 6 % 1st Debs. | { J. R. Tennant (Chairman), F. B. Dunsford, A. G. Pollock, C. G. Ross and J. A. Ross. | 6 | 6 | — | — | — | — | 95½-7 xd | 6 5 0 |
| | | | | | | — | — | 93-6 xd | 6 7 6 |

■ % of 500 dollars or £102 14s. 10d.

SECTION X.

CANADIAN STATISTICS.

CANADIAN STATISTICS.

AN INCREASING TENDENCY IN THE BRITISH PROPORTION OF CANADIAN IMMIGRATION.—PROFESSORS WEBSTER, HIND AND ELWYN, AND THE LATE LORD DUFFERIN ON CANADIAN RESOURCES.—STATISTICS AS TO CANADIAN AREA, POPULATION, PUBLIC DEBT, REVENUE AND EXPENDITURE.—INSTRUCTIVE DIAGRAM.

AN attempt has been made, in the series of diagrams which follows herewith, to place before the public the most salient features of recent material developments in the industries and statistical position of the Dominion of Canada. The figures referring to Canadian exports deal separately with the products of Agriculture, the Forests, the Mines, the Fisheries and the Manufactures of the Dominion, and collectively afford a striking proof of the varied character of the wealth and natural resources of the country. The figures which represent the Imports give us a glimpse of the benefits conferred upon Great Britain by preferential tariffs.

A feature which will be regarded with especial satisfaction on both sides of the Atlantic is the increasingly British proportion of Canadian immigration, and in this connection I may point out that the proportion is even greater than is apparent from the diagram. The earlier developments of the Western States of the American Union not only diverted the stream of European emigrants from Canada, but the more profitable employment for capital and labour offered by these States caused many who had already settled in Canada to cross the International Boundary. The more recent developments in Manitoba and the North-Western Provinces of Canada have, however, reversed this order of things, and the tide of migration is now from the United States to Canada—a migration of people mainly of British origin, which, added to that coming directly from Great Britain, serves to increase the British character and proportion of the population.

The "Canada Year-Book" for 1905 contains nearly 350 pages of official statistics. From these I have selected figures indicating the progress of the Dominion, the ratio of increase

in Population, National Debt, International Trade, Bank Deposits and miles of Railway opened for traffic. These statistical diagrams, however, only record the extent of the development of the country in various leading directions, and do not illustrate the extent of its resources—its potential wealth. In the absence of official statistics upon this important point, I may perhaps be permitted to quote from a few leading authorities.

Professor Webster, of New York University, in his "General History of Commerce," places Canada fifth amongst the gold-producing countries of the world, and adds: "The mineral resources of the Dominion have hardly begun to be developed properly. It is estimated that the coal area alone contains over 65,000 square miles The Canadian fisheries rank amongst the largest in the world. . . . Canada still has the largest forest area of any lumber-producing country in the world." Again, Professor Hind calculates that "in the region drained by Lake Winnipeg alone there are some 55 million acres fit for cereals. Its drainage area is twice as large as France." Professor Elwyn states: "The prolific fishing grounds of Hudson's Bay and of the Arctic and Pacific Coasts have hardly as yet been tested."

Then Lord Dufferin, whose views were always regarded as authoritative, said: "This vast country reaches, as the crow flies, from ocean to ocean, 4,000 miles, with an area south of the latitude of St. Petersburg of at least 2,000,000 square miles capable of cultivation, and of which fully one-half produces every crop that is grown in Great Britain." This is the land which now invites the co-operation of British capital, enterprise and labour, and no finer field for the employment of these has been, or can be, found elsewhere in the world.

DOMINION OF CANADA STATISTICS.

AREA IN SQUARE MILES.

| Provinces and Districts. | Water. | Land. | Total. |
|--------------------------------|---------|-----------|-----------|
| Ontario | 40,354 | 220,508 | 260,862 |
| Quebec | 10,117 | 341,756 | 351,873 |
| Nova Scotia | 360 | 21,068 | 21,428 |
| New Brunswick | 74 | 27,911 | 27,985 |
| British Columbia | 2,439 | 355,161 | 357,600 |
| Manitoba | 9,405 | 64,327 | 73,732 |
| Prince Edward Island | — | 2,184 | 2,184 |
| Alberta | 2,360 | 251,180 | 253,540 |
| Saskatchewan | 8,318 | 242,332 | 250,650 |
| Yukon | 649 | 206,427 | 207,076 |
| North-West Territories | 51,680 | 1,871,055 | 1,922,735 |
| Square Miles | 125,756 | 3,603,909 | 3,729,665 |

POPULATION.

| Provinces & Districts. | 1871. | 1881. | 1891. | 1901. |
|-------------------------|-----------|-----------|-----------|-----------|
| Ontario | 1,620,851 | 1,926,922 | 2,114,321 | 2,182,947 |
| Quebec | 1,191,516 | 1,359,027 | 1,488,535 | 1,648,898 |
| Nova Scotia | 387,800 | 440,572 | 450,396 | 459,574 |
| New Brunswick | 285,594 | 321,233 | 321,263 | 331,120 |
| British Columbia | 36,247 | 49,459 | 98,173 | 178,657 |
| Manitoba | 25,228 | 62,260 | 152,506 | 255,211 |
| Prince Edward Island .. | 94,021 | 108,891 | 109,078 | 103,259 |
| North-West Territories | 48,000 | 56,446 | 98,967 | 211,649 |
| Totals | 3,689,257 | 4,324,810 | 4,833,239 | 5,371,315 |

Estimated Population on 31st December, 1906 : 6,441,000.

PUBLIC DEBT.

| Year. | Gross Debt. | Assets. | Net Debt. | Net Debt per Head. |
|-------|----------------|---------------|---------------|--------------------|
| 1870 | \$ 115,993,706 | \$ 37,783,964 | \$ 78,209,742 | \$ 22.64 |
| 1880 | 194,634,440 | 42,182,852 | 152,451,588 | 36.17 |
| 1890 | 286,112,295 | 48,579,083 | 237,533,212 | 49.60 |
| 1900 | 346,206,980 | 80,713,173 | 265,493,807 | 49.88 |
| 1904 | 364,962,512 | 104,094,794 | 260,867,719 | 46.55 |
| 1905 | 377,678,580 | 111,454,413 | 266,224,167 | 44.37 |
| 1906 | 392,269,680 | 125,226,703 | 267,042,977 | 41.46 |

PUBLIC DEBT, 1906.

| | | | | | | |
|--|--|--|--|--|--|----------------------|
| Provincial debts assumed by Dominion Government at Confederation or subsequently allowed | | | | | | \$109,697,175 |
| Expended on account of Militia | | | | | | 7,301,922 |
| " " Canals | | | | | | 70,318,455 |
| " " Canadian Pacific Railway | | | | | | 62,785,320 |
| " " Dominion Lands | | | | | | 7,553,174 |
| " " Intercol. and Connected Railways | | | | | | 71,250,289 |
| " " National Transcontinental Railway | | | | | | 2,626,011 |
| " " Public Works | | | | | | 21,071,383 |
| " " P.E.I. Railway | | | | | | 4,100,919 |
| " " North-West Territories | | | | | | 3,783,724 |
| " " Sundries | | | | | | 31,781,308 |
| | | | | | | <u>\$392,269,680</u> |

REVENUE AND EXPENDITURE.

| Year. | Revenue. | Expenditure. | Year. | Revenue. | Expenditure. |
|-------|---------------|---------------|-------|---------------|---------------|
| 1870 | \$ 15,512,225 | \$ 14,345,509 | 1900 | \$ 51,029,994 | \$ 42,975,280 |
| 1880 | 23,307,406 | 24,850,634 | 1905 | 71,182,773 | 63,319,683 |
| 1890 | 39,879,925 | 35,994,031 | 1906 | 80,139,360 | 67,240,640 |

DIAGRAM No. 1.

POPULATION.

INCREASES, Period 1871-1901. { POPULATION... 54 per cent
IMMIGRATION... 198 " "

*Birthplace of those born outside the Dominion of CANADA.
& Recent Immigration.*

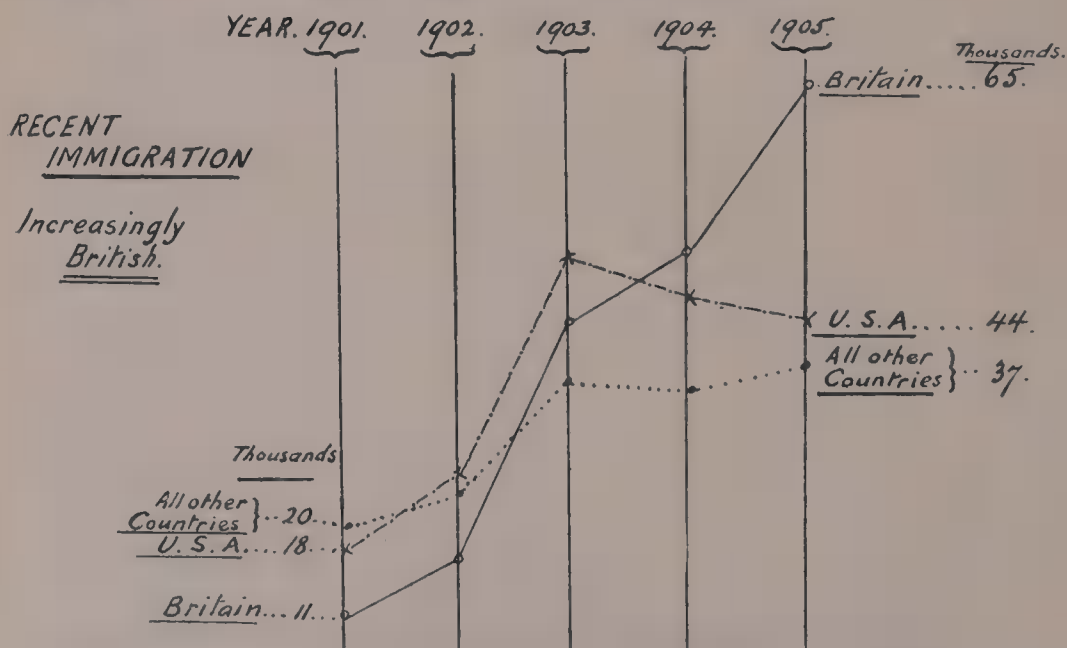
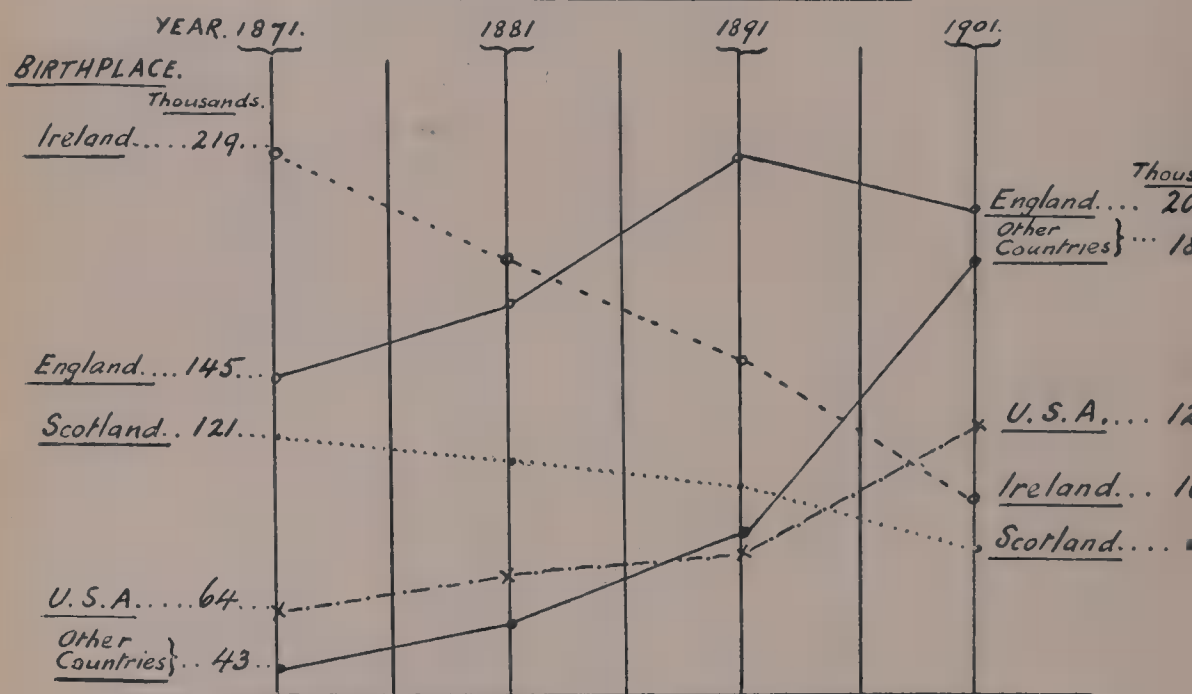


DIAGRAM No. 2.

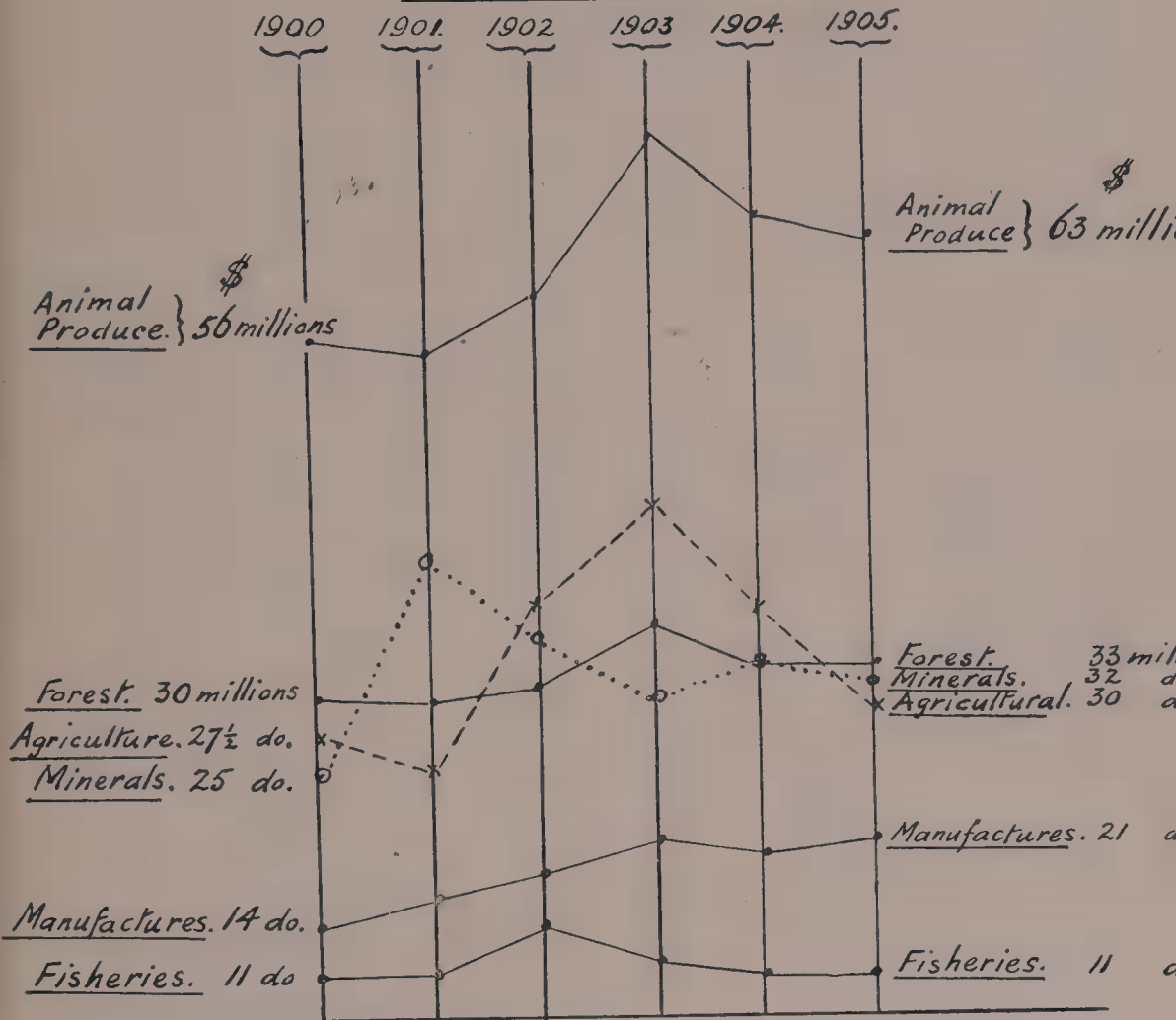
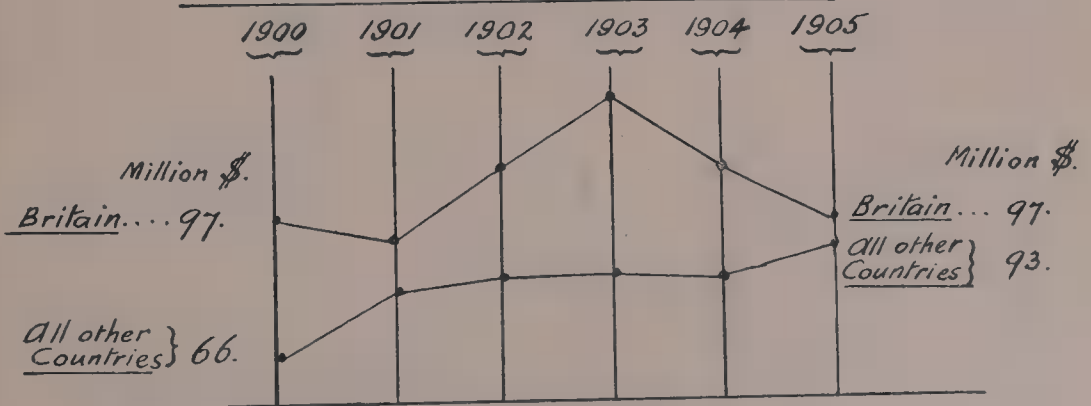
EXPORTS.DESTINATION OF EXPORTS.

DIAGRAM No. 3.

DUTIABLE IMPORTS.

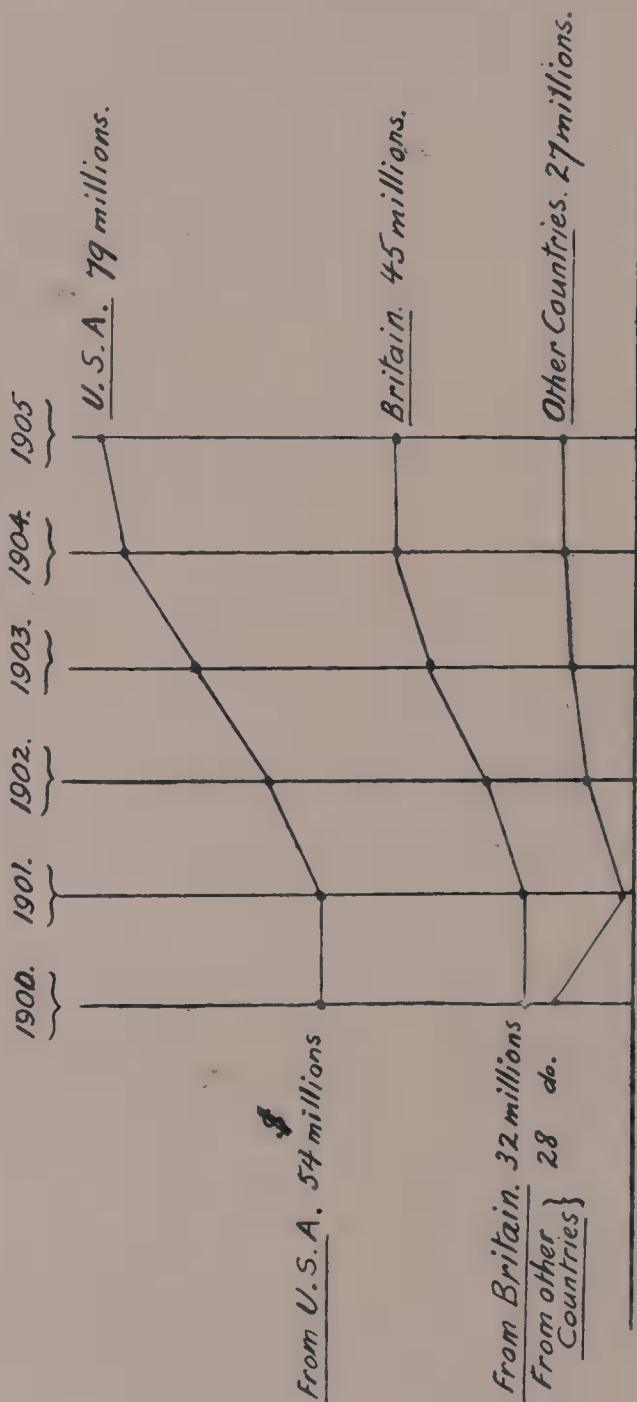


DIAGRAM No. 4

PREFERENTIAL TARIFFS.

THEIR BENEFIT TO GREAT BRITAIN.

AVERAGE RATES LEVIED ON DUTIABLE GOODS.

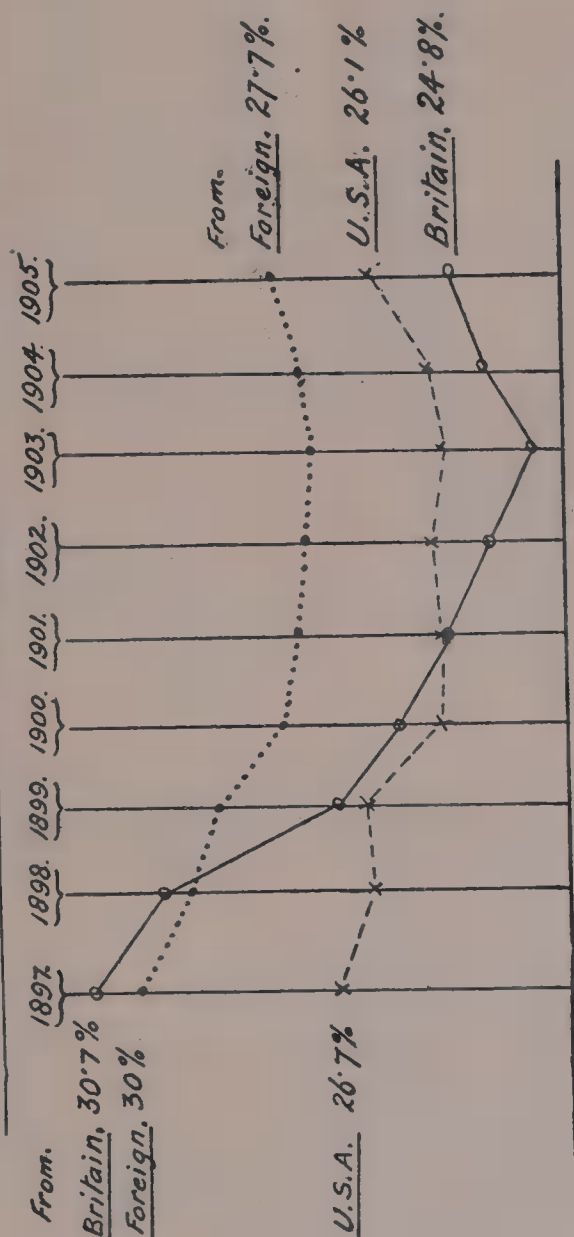


DIAGRAM No. 5

RATIO OF INCREASES IN Population, Trade, Deposits, Debt, & Railways

PERIOD 1891-1900.

PERIOD 1901-5.

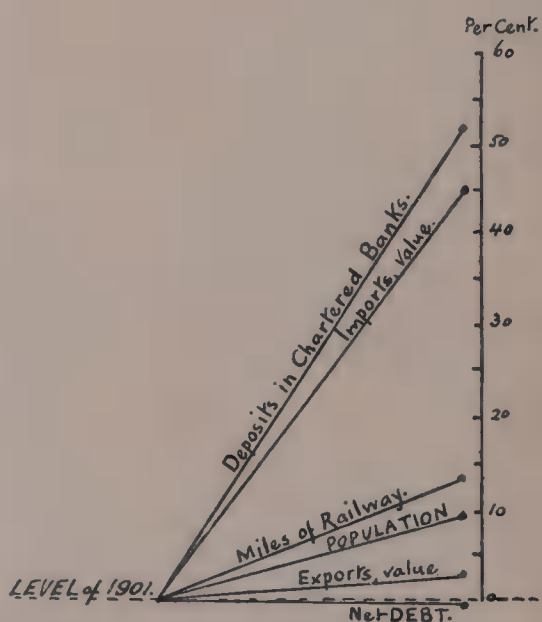
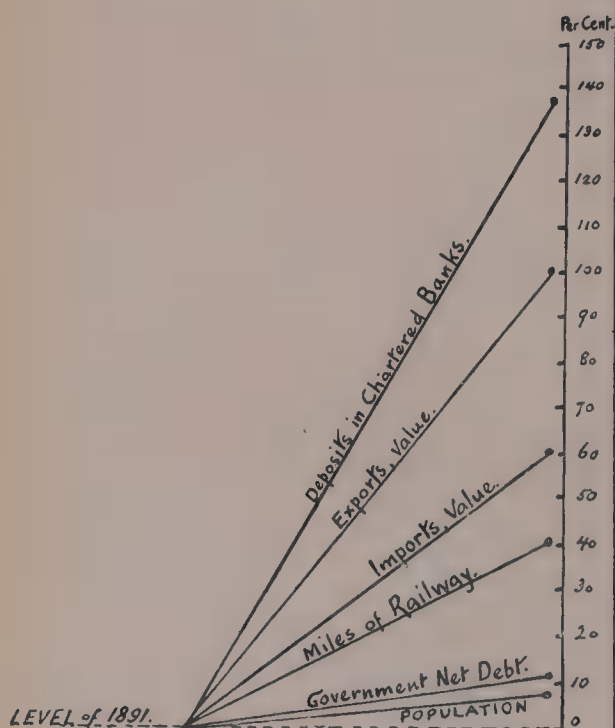


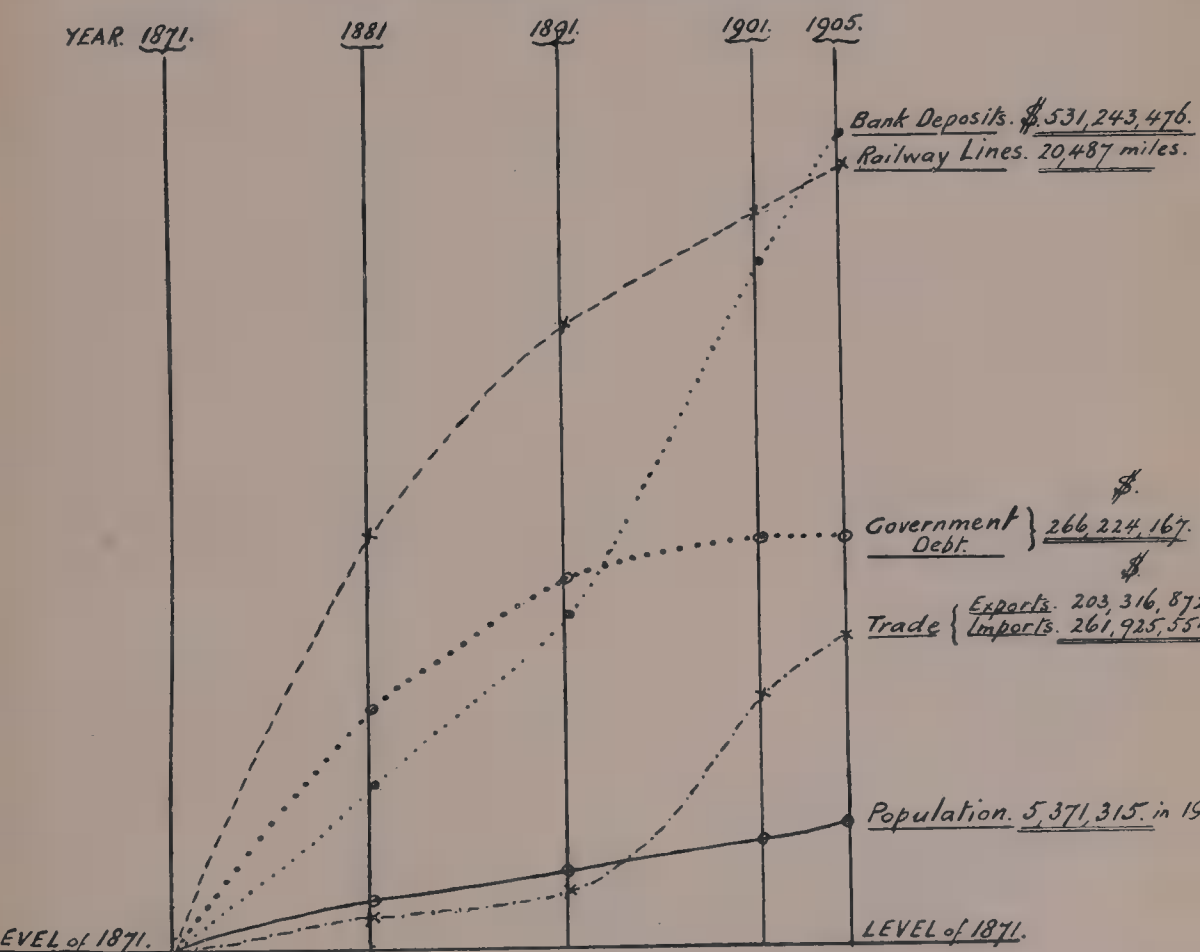
DIAGRAM No. 6.

SUMMARY.

RATIO OF INCREASE
in

Population, Imports & Exports, Bank Deposits,
Government Debt, & Railways.

Scale: $\frac{1}{8}$ in. represents 10 per cent on each decennial period.



SECTION XI.

MISCELLANEOUS CANADIAN
INTERESTS.

CHAPTER I.

THE CANADIAN PRESS.

EARLY CANADIAN NEWSPAPERS.—THE GENESIS OF THE DAILY PRESS IN CANADA.—THE “TORONTO GLOBE.”—REPRESENTATIVE NEWSPAPERS IN THE SEVERAL PROVINCES.—THE INFLUENCE OF THE CANADIAN PRESS ON THE DEVELOPMENT OF THE DOMINION.

IT would hardly be in keeping with the spirit of the old country if her scions did not emulate her in her insatiable thirst for news and knowledge through the medium of the Press. In the matter of journalism the Colonies have always shown themselves worthy of the Motherland, and it would have been strange indeed had Canada, a portion as it is of trans-Atlantic soil, where newspapers grow like mushrooms and flourish abundantly, failed to do ample justice to the Anglo-Saxon spirit, which manifests itself in nothing so forcibly as in its desire for newspaper publication and newspaper reading. Canada was very young indeed before it had any newspapers, and in new Canada the rising settlements and the prosperous townships have their newspapers almost before they have a corporate existence of their own.

It used to be said of British Colonists that where more than two or three of them were gathered together there they would have a store and start a newspaper, even if the only industry of the neighbourhood consisted in the taking in of one another's washing. Be that as it may, it makes a very small show for a Canadian town or city—because they do not deal in villages in Canada, and everything worth calling a town is a city—if its institutions do not include a newspaper, as well as a church, a school, and the inevitable “hotel.”

Although more than 150 years of British supremacy have been acknowledged on the other side of the ocean, it was not until 1752 that the first newspaper was published in Canada. In those old and strenuous times—strenuous, that is, not in the modern sense of the term—it required some resource

and hardihood to establish a paper in Canada. Nevertheless, this was done, and the first paper that ever appeared on Canadian soil was the *Halifax Gazette*, which was first published on March 23rd, 1752, making not only a remarkable record in Colonial publication, but in the history of newspaper production itself.

Thus it happens that more than seven years before this country actually captured Quebec, and more than eleven years before Canada was ceded to us, journalism began to assert its influence. Nova Scotia appears to have led the way, and I am told that a worthy pioneer, named Bartholomew Green, established the *Boston News Letter*, which was really the first newspaper published in America. It is recorded that Green died before the first number was issued, but a Boston printer actually produced the historical sheet.

At all events, whatever chronological difficulties there may be with regard to the early Canadian Press, it seems clear that the second oldest Canadian newspaper was the *Quebec Gazette*, issued on June 21st, 1764, by Messrs. Brown & Gilmour, who, as printers, formerly hailed from Philadelphia. This was a modest print, consisting of only four folio pages, measuring 18 inches by 12 inches, and each containing two columns of small type. Although this publication was started under the most inauspicious circumstances, it prospered immensely, and I believe that its original proprietors were munificently rewarded for their enterprise.

If I am not mistaken, the next important Press venture of the Canadian colonists was the *Montreal Gazette*, which appeared first on June 3rd, 1778. Opinions differ as to the origin of this publication, but it is understood that the foundation of the paper was due to a belief on the part of the American Revolutionary Party that the French Canadians could be constrained to support the rebels within the Union. It was under these auspices that Benjamin Franklin and two other immediate coadjutors became possessed of a printing press, which enabled them to appeal to the inhabitants of Lower Canada through a Press medium. Nevertheless, the French members as a whole remained loyal to British supremacy. It is worth mention that the *Montreal Gazette*, of which the original printer was De Mesples, and which has seen many developments since these initial stages, is the oldest existing newspaper in Canada to-day.

It is also an interesting historical fact that one of the first newspapers to be published in the Maritime Provinces of Canada was the *Royal Gazette and New Brunswick Advertiser*, the first publication of which took place at St. John, New Brunswick, on December 17th, 1783. It is significant that it was in the same

province that the first penny newspaper ever published in the British Empire made its appearance, in 1839, under the name of the *Morning News*. Then one finds that Prince Edward Island followed with a newspaper founded in the year 1791. But Canada proper, did not produce a newspaper until 1793, when at Newark, now Niagara, the *Upper Canadian Gazette, or American Oracle*, made its first appearance, and continued until 1813, when raiders from the United States' border lands came in and smashed up the type and presses. Nevertheless, the old paper survived this disaster. Its original establishment was followed in 1807 by the foundation of the *Upper Canadian Guardian, or The Freeman's Journal*, the editor of which, however, suffered for the temerity of his opinions by being severely dealt with by the powers that were. The early journalism of Canada was, of course, of a polyglot character, half English and half French, but when the Durham Pacification of 1840 was arranged matters settled down very considerably. After the year 1840 important newspapers were established, and some of them are still leading organs of Canadian opinion.

The honour, however, of being the first sustained daily paper to be established in Canada must be awarded to the *Montreal Daily Advertiser*, which, politically, was established in the interests of the Liberals between the 'thirties and 'forties, there seemingly being some doubt as to the exact date, by the Hon. H. S. Chapman, who subsequently became a judge on the New Zealand Bench. Meanwhile *The Colonist* had been established, and also the *Toronto Examiner* and the *Toronto Globe*, the last-mentioned as a weekly in the interests of Liberalism, subsequently becoming a tri-weekly, and finally, in 1853, a daily paper. Since then it has become one of the most important and influential of Canadian journals, having latterly installed a splendid mechanical equipment, which places it fully abreast of all current requirements, and enables it to take a leading place amongst the dominating Press organisations of the North American continent.

It was, I believe, founded by the late Mr. George Brown, who, visiting Canada from his native United States, in 1843, established the *Banner* in Toronto, following it up with the foundation of the *Globe*, which for more than thirty years he successfully controlled himself. As a matter of fact, the *Globe* holds a position of dominance in the journalism of the Dominion, and through its office in the Strand, in London, it is kept in touch with all that goes on in the active life of the United Kingdom. In Toronto its offices are splendidly equipped, and its "Jaffray" presses can turn out their 20, 24 or 32 page papers at the rate of 12,000 an hour, besides doing much more that is wonderful in the way of typographical production.

But, while referring thus pointedly to the *Globe*, I do not wish it to be taken from me that I have any especial reason to praise that excellent journalistic institution. I found during my journeyings so much that was good in Canadian journalism that it is a matter for regret that considerations of space prevent me from enlarging upon it fully, for, indeed, journalism in Canada is a very prominent factor in the promotion of the most important interests of the Dominion. While the *Globe* of Toronto holds a strong position, there is no questioning the widespread influence of the *Montreal Star* and *La Presse*, not only in the East, but over the whole Dominion, and there are also the *Witness* and the *Herald*, I believe, doing good and successful journalistic service.

In addition to these, however, mention should be made of the *Toronto World*, *Telegram*, *Mail and Empire*, and *News*, and, if space permitted, I might very properly enlarge upon a number of daily and weekly papers published in other prosperous centres of population throughout Ontario—for example, such go-ahead centres of business as Brantford, Chatham, Fort William, Guelph, Galt, Hamilton, Kingston, Lindsay, London, Peterborough, Port Arthur, Windsor, Woodstock, Sarnia and Stratford. I have taken these names at random, and so I do not pretend that they are either exhaustive or in their proper order of significance, but they indicate, collectively, that the Province of Ontario can give a good account of itself journalistically, and is able to contribute many important publications, apart altogether from trade and technical journals, which are also yearly increasing in number, to the sum total of the Press as represented by that Province.

In the Province of Quebec, apart, of course, from Montreal, there is also a good deal of journalistic life, but it is not so pronounced as is the case in Ontario. The City of Quebec publishes as dailies *La Soleil*, the *Telegraph*, *Chronicle*, and *Evenement*, and also the weekly *Chronicle* and *Telegraph*. Mention also should be made, of the *Examiner* and *Record* of Sherbrooke, and the *News* of St. John's, while Valleyfield also publishes a paper called *Le Progrès*.

Then up north by east one comes again to the Maritime Provinces, of the early newspaper enterprise of which I have already made mention. Halifax, in Nova Scotia, is surprisingly well supplied with newspapers, amongst them being the *Herald*, the *Chronicle*, which I have had occasion to quote, the *Echo*, which is an evening edition of the *Chronicle*, the *Nova Scotian*, which I think has about the largest circulation in the Province, and the *Recorder*, while in other of the rising towns of Nova Scotia there are vigorous claimants for journalistic honours. New Glasgow, for example, has its *Eastern Chronicle* and

Enterprise, and North Sydney has its *Herald*, while other coming towns are not behind in their efforts towards journalistic representation.

New Brunswick, too, does well in the matter of newspapers. There are the *Telegraph*, the *Globe*, the *Sun*, and the evening *Star*, issued in the city of St. John. Chatham has its *World*, and Fredericton its *Gleaner*, while Moncton, rendered an increasingly "coming" place by reason of its being selected as the Eastern terminus of the new transcontinental railway, has its *Times* and *Transcript*. Even the modest capital of Prince Edward Island, Charlottetown, can boast its dailies—the *Examiner* and the *Patriot*, for example—and Summerside has a couple of weeklies. Indeed, wherever activity in Canada is pronounced, there one finds newspapers.

Away to the West one comes upon a wholly distinct journalistic atmosphere. Winnipeg, of course, prosperous in everything she touches, has done well with her Press, and her *Free Press*, *Tribune* and *Telegram*, as far as I could gather, do capital work, and their premises are generally admirably equipped. Brandon, too, has its *Times* and *Sun*, and Portage la Prairie has, I think, at least one newspaper. Further west still there are more evidences of coming journalistic vigour, Edmonton, Calgary and Regina being already well forward in this direction. It was one more of the regrets attaching to my trip that time did not permit me to explore more fully than I did the journalistic recesses of the North-West. But one cannot do more than one can do, and it is better to generalise in matters of this sort than to particularise when one's information is incomplete. But from all I could hear and see and gather, the Press is going to be a great factor in the development of the North-West.

One word more—about British Columbia. We skip from the populous Eastern Provinces to the Pacific Coast, and find a world of interest when we get to the latter region. Journalistically, Vancouver is admirably go-ahead; with its *News-Advertiser*, the *Province* and the *World* it does excellently in dailies, and its prosperous weeklies besides enable it to keep up its news standard to a high level of enterprise. Victoria has also its *Colonist* and *Times*, and even Rossland has its evening *World*.

I might say much more on this very interesting phase of my subject, but my information is necessarily fragmentary. I do not pretend, indeed, to assert that everything I have said is absolutely up to date, because Canada is a country in which newspaper changes occur rapidly. Births and deaths in its newspaper world are frequent, and I may, therefore, have made errors of omission, as well as of commission, for which I must ask forgiveness. But I am glad to be able to say that in its Press

Canada has a progressive asset of the most important description, full of the optimism and enthusiasm which are the very breath of life to the rising Dominion.

And I would just like to add that, apart from the newspaper Press, the capacity of Canada in the matter of typographical and literary production generally stands very high. If anyone on this side doubts that assertion he has only to pay a visit to the office of the High Commissioner for Canada in London and view the splendid collection of Canadian-produced works available there to find justification enough, and more than justification, for the claim I have put forward.

CONCLUSIONS :

- That the Canadian Press is worthy of the enterprise and strenuousness which characterise the material life of the Dominion.
- That Canada possesses Newspapers of historic reputation, including some of the oldest of all existing newspaper properties.
- That in Newspaper practice and production Canada has little to learn from the Old Country.
- That Canada is rapidly becoming practically independent of extraneous resources in the matter of Press production.
- That the newspapers of Canada provide as a whole a magnificent vehicle for promoting the future prosperity of the Dominion, and, wisely controlled, they will exert a beneficent influence on its future well-being.

CHAPTER II.

EARL GREY'S TOUR THROUGH CANADA.

AN ELOQUENT TESTIMONY TO THE DOMINION'S GREATNESS.—
THE CALL FOR ENGLAND'S BEST.—THE HERITAGE OF THE
WEST.—NO MISTAKE ABOUT COBALT. — UNSCRUPULOUS
METHODS CONDEMNED.—SOUND AND PROFITABLE OPENINGS
IN PLENTY.—THE SHORTAGE OF LABOUR.

DURING my visit to Canada I was not fortunate enough to meet Earl Grey. This was a matter of great regret to me at the time, as I had hoped to have elicited from his Excellency his impressions of the tour he had just made through the wonderful North-West Territories of the Dominion. But an event occurred which fully compensated me for my temporary disappointment. The Governor-General took the first possible opportunity of proclaiming to the world, in language of the most eloquent, impressive and forcible character, the results of his observations. Would that each word were read by every struggling English, Scotch and Irish farmer, and by every man, woman or child whose life in the Old Country is one long struggle for a precarious existence.

Here are the words of one of the greatest Empire Pro-Consuls of modern times :—

And what is the development which lies within the womb of the broad belt of rich and fertile land, stretched over a distance greater than that which separates England from the Caspian Sea, and nearly every inch of which is suitable for happy British homes ? Why this: that it is only a question of time before you, the people of Canada, become, because of your numbers, if you only remain united, high-souled, public-spirited, and incorruptible, the most powerful factor, not only in the British Empire, but in the English-speaking world.

It is to be remembered that Earl Grey is not only a statesman. In Canada they speak of him as a commercial man first and a politician after. By that they mean that he, more than any other occupant of the vice-regal throne, has realised the all but inexhaustible resources of the country he governs in the name of

his Imperial Master ; that, far above and beyond all the passing strife of political life, his aims and objects are to assist in the development of those wonderful resources, and to ensure that the great Dominion of Canada of the future shall be built up with the bone and sinew of British manhood. Surely this is the Imperial Idea in its most sensible form ? It involves no intrenchment upon the rights of others, the displacement of no indigenous races, the expenditure of the blood of not one solitary soldier. In substance it means that there is room for a million families from Home in the virgin lands of the West. A million ? Compared with the congested state of the Old World, there is room for ten millions !

Will his words fall upon deaf ears ? Will the popular idea in this country continue that Canada is only a suitable dumping-ground for the failures, for the undesirables, for the scum ? Or will those ringing words go straight to the hearts of the hot young blood of the rising generation, cramped and confined by the crushing conditions of an overcrowded civilisation ? Will they appeal to the harassed farmer who has for years and years tried to earn a precarious livelihood from an exhausted soil ? Will they stir to action the thousands of small capitalists who are vainly looking for an opportunity of establishing themselves where they will have a chance of a modest competence ? Emigration agents have shouted from the housetops the glories of the West ; real estate men have cried " Buy ! buy ! buy ! " ; newspapers have devoted pages to the possibilities open for British capital, British enterprise, British energy ; but so far with little result. Surely, then, Earl Grey's words will have a far-reaching effect !

The golden heritage of the West has been, and is being, seized by the 'cute farmers across the International Border. Yankee farmers are selling their land, which has been worked a generation, at anything from 25 to 50 dollars an acre, and are buying virgin Canadian land at from 8 to 10 dollars an acre. American traders are obtaining control of the best sites in the " cities " which are springing up all along the railway lines ; American capital is obtaining control of the industries of the great cities of Toronto and Winnipeg.

They are now repeating the process in regard to the minerals. The richest mines in Cobalt have fallen to their shrewdness and to the fact that their agents have the money in their pockets to close at once with every likely proposition. The timber of the Province of Quebec has already been exploited—much of it being ruthlessly cut down, with little or no provision for future generations. It now remains to be seen whether this lethargy on our part is to continue, and if we are content to let others

reap where we have sown. Surely the words of the Prince of Wales when he returned from India and addressed the citizens of London at the Guildhall—"WAKE UP, ENGLAND!"—were never more applicable than they are to Canada.

And now I come to the second subject dealt with by the Governor-General of Canada. It was in reference to Cobalt. He congratulated his hearers on "the proved existence at Cobalt of large deposits of some of the richest silver ore the world has ever seen." "I understand," he continued, "no one is yet in a position to say definitely how far the area and depth of these rich silver deposits extend."

No more judicious words could have been selected. They describe the exact position; they confirm my own conclusions: "That the whole future of Cobalt Camp rests upon the question whether the value of the ore continues at depth," and "what may be found in the little known land of Cobalt is but vaguely apprehended"—and they, while inculcating caution, convey the hope that the mineralised area may be a widely-extended one. Personally, from what I saw of the country, I believe that from the similarity of the geological features much of Northern Ontario will be found to be richly endowed with precious metals, and that the Dominion will possess in this part of the Province of Ontario a priceless mine of wealth. Already many discoveries have been reported, but until these have been verified Earl Grey unquestionably took a wise and prudent course in confining his statements to the proved value of the Cobalt deposits.

And now I come to perhaps even the most important portion of the Governor-General's address. It consisted of a solemn warning against the fraudulent company-promoter. His actual words were:—

My experience elsewhere of mining booms leads me to believe that this uncertainty will give an opportunity to unscrupulous company promoters to take advantage of the excitement which those rich discoveries invariably engender in the human heart. I would earnestly warn the people of Canada, of New York, and of London that before they spend their spare cash on the purchase of mining stocks they should carefully discriminate between mere prospects and proved mines, and take care that, in their anxiety to become part-owners of a silver mine, they do not find themselves the owners of nothing more profitable than surface rocks and trees.

I could have wished that the noble Earl had not confined his caution to mine speculations, but in all probability this was an oversight. For I happen to know that not only the constituted authorities, but the great railway companies and banks have come to a common agreement to resist with might and main every attempt on the part of bogus company-mongers to exploit the country for their nefarious purposes.

In a recent address to the shareholders of the British Columbia Electric Railway Company, Mr. R. M. Horne-Payne dealt with this subject in no uncertain terms, and I have every reason to believe that he acted as spokesman for the largest and most important commercial interests of Canada.

His words have been published far and wide, but they will bear constant repetition. They were:—"I have had in my hands during the last few weeks draft prospectuses of at least a dozen enterprises of the wildest nature, involving millions sterling, and I fear that my countrymen are going to find the money for most of them. The Canadian market has hitherto been kept clean and wholesome, but we are threatened, when money gets cheaper, with a deluge of promotions involving most of the worst practices invented during the Kaffir mania. I notice that they are largely engineered by the same, or similar, gangs of American impostors as have so frequently robbed the public here, and made the very name of American enterprise synonymous with dishonesty in this country, and have given all United States Industrials a most unfairly evil name in Europe. The schemes I refer to include railways, electric railways, water-power schemes, marine railways and canals, town-site and land schemes of the very wildest nature, and if they are taken up I have not the least doubt at all that 90 per cent. of the capital will be lost."

It is common knowledge what a dead stand Lord Cromer has made in Egypt against the dishonest company promoter. The results can be seen in the prosperity and credit of that country to-day. If the Canadian authorities will act with equal firmness, courage and impartiality, Canada may be spared the ignominy, distress and loss which have overtaken so many less-favoured countries, and English investors will be saved from the results which frequently are due to their own credulity, carelessness and ignorance.

On the other hand, there is just a little reason to fear that Mr. Horne-Payne's drastic warning may have the effect of scaring unthinking people from really good undertakings. This was certainly not this gentleman's intention, for in all England there is not a more enthusiastic believer in the future greatness of the Dominion, or one who has done more, in the days when Canada was more or less under a cloud of indifference, to attract British capital to the development of its resources. Unquestionably there are manifold openings at the present time for profitable investment in that country.

Apart from the widely-advertised West, the East is throbbing with activity. There is hardly an industry which is not taxed to the utmost to keep pace with demands. In every manufactory I visited I was met with such statements as "We are doubling

the size of this building," or "We are adding 300 ft. on to this workshop," or "We never close; fresh shifts keep the place going day and night." With the enormous impetus which has been given to agriculture in the West, with the construction of railways in all directions, and with the advent of an enormously increased population it is inevitable that this should be the case.

I could mention half-a-dozen industries where the managements are absolutely compelled to refuse orders which an English, or a German, or even an American firm would be eager to secure. In my presence an order for ten heavy railway locomotives was refused by a comparatively new engineering firm. Was it because the price was not high enough—because there were time-limits, or any other vexatious restrictions? Not a bit of it. The words I heard were: "If they want us to bother about it they must give us an order for 20 engines." And I believe the increased order was forthcoming.

Take the building trade: Last year ten million dollars, or more than two million pounds, were spent in new buildings at Toronto, and an equal sum was spent at Winnipeg. Every other city, according to its size, could tell a similar tale—excepting, perhaps, the city of Quebec. I have no information from this city, but, judging by appearances, this picturesque and historical old-world place has not to any great extent felt the fierce breath of progress which is sweeping with hurricane force across the rest of the wide and fair domain of British North America.

It is true Canada wants capital. We have it on the authority of Mr. Byron Walker, the general manager of the Canadian Bank of Commerce, and upon that of many other leading bankers. It is this very fact that makes the country such a desirable one, not only from an investor's point of view, but from that of the capitalist who is looking out for opportunities for using his money and energies to the best advantage. If Canada had all the financial resources she required there would be little point in calling attention to her greatness. But this is not the case, and therein lies the opportunity—the opportunity to investors to earn with safety a bigger interest than they can obtain elsewhere; the opportunity to capitalists to participate in the commercial progress and prosperity of a country offering boundless openings for their nerve, energy and enterprise.

But, after all, capital is not everything; bone and muscle are required to construct the railways, farm the land, and supply the labour for the engineering and a hundred other trades. This is not forthcoming at the rate one would wish to see, and the quality we are sending out from this country is not all that could

be desired. "The best and nothing but the best" is what the Canadians want. Wastrels have a smaller chance of existence there than even here. "Work! WORK! WORK!" is the cry through the Dominion, East and West—not work for a pittance, but for a good solid wage which will more than keep body and soul together.

Men with knowledge of country life, men who can do a hard day's toil with a pick and shovel, and skilled artisans are what are required, and with the conditions of the labour market over here they should be readily supplied. If they are forthcoming then the Canada of the future will be British in blood, sentiment and government—a bulwark of the British Empire, and a pride and a glory to all those who have contributed to its greatness.

CONCLUSIONS :

That Earl Grey's eulogy of the West was universally applauded.

That Earl Grey's commercial instincts are a great asset to the Dominion.

That Earl Grey's warnings against the unscrupulous promoter were approved as timely by Canada's leading financiers.

That there are plenty of sound and profitable openings in Canada that should command attention.

That British investors will be blind to their own interests if they neglect these opportunities.

That labour of the "right sort" is urgently needed in all trades in Canada and in the agricultural districts.

CHAPTER III.

CANADIAN MILLING ENTERPRISE: THE OGILVIE FLOUR MILLS.

THE GREATEST MILLING UNDERTAKING IN THE EMPIRE.—THE MILLS AND FACTORIES OF THE OGILVIE COMPANY.—THE COMPANY'S ELEVATORS AND FLOUR FACTORIES.—SOME PORTENTOUS FIGURES.—CANADA'S GROWING FLOUR TRADE.

ALTHOUGH, when compared in an industrial sense with the United States, the Dominion of Canada is still quite a young country, there are already abundant evidences on every hand that the "Land of the Maple" means to emulate her robust American cousin in her admiration for bigness. There is, I suppose, something in the spaciousness of that land of magnificent distances, where Nature has accomplished her designs on the most ambitious scale, which acts as a stimulus upon her sons, and leads them to fashion their enterprises on lines which are calculated at first to shorten the breath of slower-going Old-Worldists. Nothing, at all events, impressed me more during my Canadian visit than the surprisingly large dimensions which during a few years some of the individual Canadian undertakings have attained, and the great potentialities and possibilities which are still open to them in the near future.

My chapters on the Cobalt mining district, on Port Arthur, the Lake terminal of the Canadian Northern Railway, on the great enterprises of the Canada Foundry Company, Limited, at Davenport, near Toronto, and of the Western Canadian Cement and Coal Company, Limited, at Exshaw, in Alberta, indicate with what extraordinary rapidity, and yet substantiality, of growth individual industrial enterprises can develop in the congenial soil and tonic atmosphere of Canada. Another remarkable example of strenuous development on a rapid scale, although extending over a somewhat greater number of years than several of the other concerns with which I have had to deal in this volume,

is the immense milling enterprise carried on by the Ogilvie Flour Mills Company, Limited, whose official headquarters are at Montreal. The several flour, corn-product and oatmeal mills, factories, grain elevators and storage houses owned and operated by this corporation are in the aggregate not only the largest in Canada, but their capacity far exceeds that of any other kindred institution within the British Empire.

Either of these facts would in itself justify some account being given of the company's manifold and far-reaching ramifications in this volume. After what I saw for myself at Montreal and Winnipeg, supplemented as it was by many interesting statistical data, I feel I should be guilty of the most culpable omission if I failed to deal, in however cursory a fashion, with what is really one of the most remarkable industrial organisations in Canada. I had heard a good deal about it both before I left England and after my arrival on the other side, but it was not until I was taken under the wing of Mr. W. K. Black, the Western Manager of the Ogilvie Flour Mills Company, Limited, that I realised the place that corporation occupied in advancing and participating in the great work of development now proceeding so vigorously throughout the Dominion.

First let me state that since its incorporation the company has made immense advances in the scope of its operations and the extent of its property. Its authorised capitalisation consists of 1,250,000 dollars in shares of 100 dollars each, all of which have been paid up, and 2,000,000 dollars in Preferred shares, also paid up. Bonds constituting a first mortgage on the property of the company, bearing interest at 6 per cent. and redeemable in 30 years from June 1st, 1902, have been issued; and the dividends paid on the Common and Preferred stock have been at the rate of 7 per cent. The profits for the working year which ended on August 31st, 1905, amounted to 472,230.28 dollars, and the real estate, water-powers and mill plants in Montreal, Winnipeg and Fort William, elevators in Manitoba and the North-Western Territories, property at St. John, New Brunswick, patent rights &c., were valued in the last balance-sheet at 3,220,858.75 dollars.

The extent of the company's milling operations can be understood when I state that it owns six mills in different parts of the Dominion, having an aggregate productive capacity of 15,800 barrels per diem. The principal one is the Royal Mill at Montreal, which enjoys the distinction of being by far the largest mill in the British Empire, and this, be it said in passing, is no small boast. The capacity of this mammoth mill is 6,000 barrels, of 192 lbs. each, of flour per day! This mill has a magnificent equipment, and is operated by water-power, although it is fitted with auxiliary electric power as well.

The Glenora Mill, also at Montreal, is a smaller mill—smaller, that is, when compared with the huge Royal—and has a capacity of 2,000 barrels per day. It is operated by water-power also, and, like the Royal, has the advantage of an auxiliary electric-power installation. Then the company has a corn-product mill at Montreal capable of an output of 1,500 barrels daily. This mill, too, like the others just referred to, is driven by water-power, having, besides, an auxiliary electric-power plant.

These Montreal mills, it should be mentioned, are located on the Lachine Canal, and are remarkably well placed as regards water and railway connections with all points of importance, both domestic and seawards, as sidings connect directly with the three great Canadian railway systems to which access is available in this part of the Dominion—the Grand Trunk, the Canadian Pacific and the Intercolonial. The bulk of the wheat which is handled by these mills is loaded from the company's own elevators at Fort William—the terminal point of the Canadian Pacific Railway on Lake Superior—and shipped through to Montreal without "breaking bulk," millions of bushels being thus conveyed and operated upon annually.

Another large and important mill is operated by the Ogilvie Company at Winnipeg, the great and populous distributing centre of North-Western Canada, which, as such, has at present nothing to compete with in its own distributive monopoly between itself and the Arctic Circle on the north and the Rocky Mountains on the west. This flour mill has a daily productive capacity of 3,000 barrels, and, unlike the company's Montreal mills, has been operated by steam, power being derived from a steam-engine of 1,200 horse-power. This method of driving, however, is now superseded by electricity, and it was expected that by this time electric power would be the sole motive agency. The current is supplied by the Winnipeg Electric Railway Company from the power they have developed on the Winnipeg River, some sixty miles distant from the city. The company also have an oatmeal mill at Winnipeg, capable of producing 300 barrels per day. This mill is operated both by steam and electric power.

One more large mill is owned by the company at Fort William, and is most advantageously situated at that port and railway centre, which, as already stated, is the terminal point on Lake Superior of the Canadian Pacific Railway, with, as its immediate neighbour, Port Arthur, correspondingly the Lake terminal point of the Canadian Northern Railway, and, as such, full of the industrial and commercial potentialities which I have indicated elsewhere. This mill at Fort William has a daily capacity of 3,000 barrels of flour. It is now driven by a fine

new electrical plant, which was started during last summer. The current, it is interesting to note, is generated at the famous Kakabeka Falls, on the Kaministiquia River, located 18 miles from Fort William, in a region possessed of many remarkable water-powers.

Such, then, are the flour, corn-product and oatmeal milling resources of the Ogilvie Flour Milling Company, Limited. To cope in a partial measure with a daily aggregate of 15,800 barrels of product, the company run two barrel factories, one at Montreal and one at Winnipeg. The former has a very large plant, which is capable of an output of 2,500 barrels daily. The Winnipeg plant turns out about 500 barrels daily, so that it can be understood that the total turn-out of barrels of which the two factories are capable far from suffices to meet the daily output in barrel capacity of the company's mills.

Quite as remarkable in their way as the mills are the elevators and grain stores owned by the Ogilvie Company throughout Canada. There are seven terminal elevators, situated at Montreal, Winnipeg and Fort William, having an aggregate storage capacity of 2,300,000 bushels of grain, and almost a hundred other elevators scattered throughout the vast areas of Manitoba and the North-West, these having an aggregate storage capacity of 3,035,000. The total grain storage resources of the company are thus equivalent to the accommodation of 5,335,000 bushels.

The terminal elevators at Montreal and Winnipeg are, of course, of very much greater capacity than those situated throughout the wide-spread country districts, and some idea of their importance as factors in the company's terminal arrangements may be gathered from the following details :—

| | | | | | Bushels. |
|--------------------------|----|----|----|----|-----------|
| Elevator A at Montreal | .. | .. | .. | .. | 250,000 |
| " B " | .. | .. | .. | .. | 250,000 |
| " C " | .. | .. | .. | .. | 250,000 |
| " D " | .. | .. | .. | .. | 400,000 |
| " A and B at Winnipeg | .. | .. | .. | .. | 300,000 |
| " C " | .. | .. | .. | .. | 250,000 |
| " at Fort William | .. | .. | .. | .. | 600,000 |
| Total | | | | | 2,300,000 |

The elevators of Manitoba and throughout the North-West vary considerably in capacity, ranging from 15,000 bushels in such places as Alexander, Lauder, Melita, Niverville and Rosenfeld, to 45,000 bushels in Altona, Gretna, Morden and Morris.

Then, as regards the flour-storage capacity, the warehouses are situated at the terminal points of Montreal, Winnipeg and Fort William. Their details are worth repeating :—

| | | | | | Bushels. |
|-------------------|------------------|----|----|----|----------|
| Floor warehouse A | at Montreal | .. | .. | .. | 50,000 |
| " | " B | " | .. | .. | 80,000 |
| " | " C | " | .. | .. | 25,000 |
| " | " A at Winnipeg | .. | .. | .. | 12,000 |
| " | " B | " | .. | .. | 25,000 |
| " | " C | " | .. | .. | 10,000 |
| " | " A Fort William | .. | .. | .. | 100,000 |
| Total | | | | | 302,000 |

In the cases of the elevator and flour warehouse at Fort William, it will be observed that the storage capacity is much greater than in those of the elevators and warehouses at Montreal and Winnipeg, the fact of Fort William being the important railway and Lake terminal point of a wide and far-reaching district being in itself sufficient to account for this especial significance. The Fort William elevator, too, like the flour mill there, is operated by electricity.

There is much more yet that I might, and perhaps should, include in this review without its still being otherwise than cursory and general. I will only add, however, that the Ogilvie Company have their own machine shops in Montreal and Winnipeg, and extensive stabling accommodation in both of these cities. They have various other properties, too, in Montreal, in addition to their official headquarters, and they have offices besides in Winnipeg and St. John, New Brunswick. Moreover, they have their own office in New York to deal with their West Indian trade, and offices and warehouses in Toronto, London (Ontario), Sarnia, Ottawa, Quebec and Vancouver (British Columbia), so that it will be seen the ramifications of their grain and flour trades are of a far-reaching description.

That the great "Grain Belt of the West" is fully justified in being described—as I so describe it in another chapter—as "The Granary of the Empire" is beyond question, even when making fair allowance for any excess of optimism which is born of the native enthusiasm of the thorough-going Canadian. It is, however, insufficiently understood on this side that Canada can not only grow wheat enough to feed the Old Country, and the whole Empire practically, if necessary, but can grind vast quantities of it into flour ready for the baker or the household, and distribute it to consumers wherever there is a market.

Since my return—indeed, so recently as March last—a report was published in *The Financier* from Ottawa to the effect that owing to the Chinese boycott of American flour a big trade had developed with Canadian millers. So far 100,000 bags had been ordered, and every Canadian Pacific steamer leaving Vancouver up to June would be booked to carry shipments. Realising the

tremendous possibilities of the Canadian market, the Washburn-Crosby Company, Minneapolis, the largest millers in America, will, it is now credibly reported, erect an 8,000-barrel mill at Keewatin, Manitoba.

These prognostications of the great future of the Canadian flour milling industry are abundantly confirmed by other evidences. Canada is now exporting its flour to the Far Eastern markets as well as to the Far Western and the Far Southern. Its trade in this great product is fast becoming fully cosmopolitan. But while the Dominion possesses many flourishing and important concerns of the kind throughout its vast domain, its milling industry still finds its chief exemplification in the mills, elevators and warehouses of the Ogilvie Company.

CONCLUSIONS :

That the Ogilvie Flour Mills are a remarkable organisation.

That the Company's development has been impressive.

That it has attained mammoth dimensions.

That the Company owns six Mills in different parts of the Dominion.

That one of these is the greatest in the Empire.

That the Ogilvie Elevators and Grain Stores are as remarkable as its mills.

That the Company dominates the Grain Belt of the West.

CHAPTER IV.

CANADIAN IMMIGRATION: HINTS FOR INTENDING EMIGRANTS.

SIX YEARS' CANADIAN IMMIGRATION.—THE INRUSH FROM THE UNITED STATES.—SIR THOMAS SHAUGHNESSY AND THE ALLEGED SWAMPING OF CANADIANS.—CANADIAN IMMIGRATION PROPAGANDA IN THE UNITED KINGDOM.—HOW INTENDING BRITISH EMIGRANTS SHOULD PROCEED.—THE FREE GRANTS OF LAND TO IMMIGRANTS.—PURCHASE OF LAND FROM THE RAILWAY COMPANIES AND LAND CORPORATIONS.—THE WESTERN TOWNSHIPS AND HOW THEY ARE LAID OUT.—THE COST OF SETTLEMENT ON A 160-ACRE FARM. — THE CANADIAN WINTER. — THE CLASSES OF EMIGRANTS WANTED FOR CANADA, AND THE RATES OF WAGES PAID.

IN compiling a volume of this description I should be guilty of a grave omission if I laid down my pen without having dealt specifically with the all-important question of Canadian Immigration, upon the successful realisation of which the future of the Dominion so largely depends. The chief wants of Canada at the moment are population and labour, and this remark applies with especial significance to Western Canada. Last year was a record year in the history of Canadian immigration, the addition to the population of the country for the twelve months being approximately about 215,000; but, as I have pointed out elsewhere, the influx continues now on a greater scale than ever, and it is calculated by those who are in a position to form an accurate judgment in the matter that last year's total will be exceeded by quite another 100,000 during 1907. Of these three hundred and odd thousand immigrants who will this year make their homes in Canada, at least a quarter of a million, it is estimated, will settle in the Western Provinces.

The accompanying tabular statement shows the growth of immigration during the first six years of the present century :—

| Year. | British. | American. | Continental. | Total. |
|--------|----------|-----------|--------------|---------|
| 1900-1 | 11,810 | 17,987 | 19,352 | 49,149 |
| 1901-2 | 17,259 | 26,388 | 23,732 | 67,379 |
| 1902-3 | 41,792 | 49,473 | 37,099 | 128,364 |
| 1903-4 | 50,374 | 45,171 | 34,785 | 130,330 |
| 1904-5 | 65,359 | 43,652 | 37,255 | 146,266 |
| 1905-6 | 100,000 | — | — | 215,000 |



Colonel A. D. DAVIDSON.

Of the 65,359 British immigrants for 1904-5, 49,617 hailed from England and Wales, 11,744 from Scotland, and 3,998 from Ireland. Then, of the 215,000 which was approximately the figure for 1905-6, the United Kingdom contributed nearly 100,000. The homesteads taken up in 1906 were far in excess of those entered in any previous year, amounting, as they did, in the aggregate to about eight million acres, of which total about five and a-half million acres were situated more or less along the track of the Canadian Northern Railway. These five and a-half million acres are occupied by about 35,000 agricultural settlers.

Perhaps the most significant fact about the Canadian immigration of the past two or three years has been the inrush of agriculturists from the principal grain-growing States on the other side of the International Boundary. In the first instance this influx was in a large measure due to the initiative and efforts of Colonel A. D. Davidson, who had charge of the Land Grant Department of the Canadian Northern Railway. With the progress of railway development in Western Canada Colonel Davidson, with a long experience of the American West, realised that Canada's chance had come, and, that with its better climate and soil and cheaper freights to the markets of the world, Western Canada had before it a future brighter even than that which became the heritage of the great agricultural States lying to the south of the International Boundary.

Colonel Davidson threw himself with characteristic energy into the work of promoting the settlement of the lands more or less abutting upon the railways in Western Canada, and co-operated in this work with the Dominion Government. An organisation of something like three thousand agents throughout the United States made it its business to induce farmers to turn their attention to Western Canada. Representative American farmers were invited to visit and inspect the lands, with the result that their approval of them was so complete that many of them secured large holdings right away, and recommended their friends to come and do likewise. Then they returned to the United States, realised their farms at high prices, retaining for themselves the pick of their live-stock, and returned to the Canadian prairies to work out their agricultural salvation in the new land on the lines they had followed in earlier years in the United States. Having capital and ripe experience, it goes without saying that they made almost ideal settlers in the new country.

It has been frequently suggested that the huge incursions of settlers from the United States will have a prejudicial effect upon the national spirit of Canada—an Americanising influence, which may not be beneficial either to the Dominion or to the Empire from an Imperial standpoint. This, however, is not the opinion of representative Canadians. Sir Thomas Shaughnessy, for example, in an interview published a few months ago in *The Financier*, was emphatic on this point. "I have not the slightest fear," he said, "of the Canadians being swamped. I happen to have been born in the United States myself, although I went to Canada early in life. As I decided to settle down there I became a British subject. That is quite in accordance with American ideas and American practice. If a man goes to the States and makes his home there, gets his living there and becomes one of the permanent

community without becoming an American citizen, he is apt to be looked upon with a certain suspicion. Americans have a great idea that a man should accept the duties of citizenship in the country where he gets his bread and butter. That is almost a dogma with the citizens of the Republic. Consequently, when American farmers come across the boundary and settle in Canada, there is no doubt they will become naturalised, and, I should say, prove good and loyal subjects. Besides which, it must not be forgotten that a considerable number of those coming from the States are Canadians by birth who have come back again."

But, after all, Canada prefers British immigrants to those of any other nationality, and certainly there is no lack of enterprise in the matter of immigration propaganda. A number of important changes have been and are being instituted in connection with the popularising of emigration from the United Kingdom to Canada. Londoners are tolerably familiar with the attractive displays of agricultural produce made in the windows of the Canadian emigration depôts, but hitherto such displays have been limited to the bureaux in London and Glasgow. The new policy involves the offices in other provincial centres being situated on the ground floors of buildings, thus enabling displays to be made which can be seen by passers-by. This is a detail of first-class importance, inasmuch as the Canadian Government is satisfied that the best class of emigrants hail from the Old Country, and it is Britons who are most desired for labour and development purposes in the Dominion.

Under the new arrangements Cardiff ceases to be the headquarters of Canadian emigration propaganda so far as the West of England is concerned, Exeter taking its place in this connection, and, as the beautiful Devonshire city is situated in the midst of one of the finest agricultural districts in England, it seems reasonable to suppose that results will be more satisfactory than they were when Cardiff, which is essentially a shipping and mining centre, was the West of England headquarters. For the future York will also be an important centre, covering as it will the counties of York, Durham, Northumberland and Cumberland. Aberdeen, for the North of Scotland, and Londonderry, for the North of Ireland, will also be useful headquarters of emigration. Moreover, the automobile principle promises to have an important place in the Canadian emigration propaganda of the future. Motor-wagons are being equipped, and will to all intents and purposes be travelling museums, illustrative of Canadian agricultural possibilities, and movable centres for lecturing representatives.

Nevertheless, it cannot be too strongly emphasised, as I understand Mr. J. Bruce Walker, the Assistant-Superintendent of Emigration to the Canadian Government, has been at pains

to impress upon all and sundry, that it is "the hewer of wood and drawer of water" who is wanted in Canada to-day—that is to say, the unskilled, willing, sober, industrial labourer and handy-man, and not the cuff-and-collar clerk, the suave and starched shop-walker, the professional man, or even the skilled artisan. Brains are always a valuable asset where immigration is concerned, but Canada suffers from no famine in brain tissue. What she wants more than brains just now are muscle and sinew—human flesh and blood willing to work hard for good pay under good living conditions, and with abundant promise of ultimate substantial reward for sober, honest and industrious labour.

The intending emigrant will naturally be disposed to ask what time of the year is the best in which to leave for Canada. As a matter of fact, the best season of the year is now, or even, if that had been possible, a little earlier—in March and April—but, anyhow, the emigrant arriving in Canada in the early summer has all the best season of the year before him. He can see his way about, familiarise himself with the country and its ways—settling himself in all probability in employment in the meantime—before the winter season sets in. The Canadian Pacific Railway Company—experts, as they unquestionably are, in all that pertains to Canadian immigration—counsel intending settlers uncertain of their final destination to book right away through to Winnipeg, or, if the emigrant hesitates to go so far West, to Toronto, these two cities being the main points from which information regarding the country further afield can best be ascertained. In the case of Toronto being selected, applications with regard to employment on farms should be made to the Immigration Department of the Provincial Government, at Parliament Buildings, Toronto. If Winnipeg is the temporary destination, then application should be made to the Government Immigration Commissioner in that city, as at his office farmers and others register a note of their requirements.

In a useful leaflet issued by the Canadian Pacific Railway one is informed that "men without farming knowledge usually seek employment at a small wage with a Canadian farmer, so as to gain experience of the ways of the country before starting on their own account. In the springtime train-load after train-load is rapidly absorbed upon arrival, so that it is not necessary to make any arrangement before leaving England. The best time to leave Europe is the end of March or beginning of April. Inexperienced farm hands, if going out earlier, should book to Toronto, Ontario. Good farm hands receive high pay. At Quebec, Montreal, Halifax, St. John, N.B., Port Arthur, Winnipeg, Regina, Dauphin, Prince Albert, Lethbridge, Calgary, Edmonton, Minnedosa, etc., there

are depôts for free temporary accommodation of emigrants. Food can be bought cheaply outside and cooked in the halls."

It is well to bear in mind that, while meals and practically everything else are included in the lump sum payable for the passage between this country and Winnipeg—for, be it stated, there are neither free nor assisted passages granted—still, passengers have to pay for their meals on the three days' railway journey between the landing port on the other side and Winnipeg, a fair lunch being provided at the railway bars for about a shilling per head. The colonist cars on the trains are adapted for sleeping purposes at night without additional charge, but, as these cars are not ordinarily upholstered, the provision of a rug and pillow is to be recommended, although outfits, consisting of a mattress, pillow, curtains and other accessories can be purchased for about half-a-sovereign from the railway agents at the landing ports before starting on the railroad portion of the journey. It is, too, well for intending emigrants to note that by steamer and rail the free baggage allowance is limited to personal effects only, such as clothing and the like, packed in trunks and similar receptacles, but these facilities do not extend to household effects or other goods in packing cases, which last must be ordinarily shipped as freight both by ship and train.

Probably the majority of emigrants in this country who will take advantage of the present demand for labour, especially in the Canadian West, will hardly be in a position to avail themselves of the free grants of land offered by the Government, but, on the other hand, there will be numerous cases in which these free grants will be the main inducement to emigration. The Government offer free grants of 160 acres to each male immigrant of 18 years of age or over, the only cash demanded being £2 1s. 4d., the cost of registering the title. The free grants, of course, are not absolutely unconditional. The Government provides that the settler must reside on the land for six months of each of the first three years, and he must during that time bring under cultivation at least fifteen acres. Then, of course, there is a great choice of land for sale by the great railway companies of excellent agricultural value, suitable, according to circumstances of situation and otherwise, for grain and root-crop growing, fruit-growing or mixed farming, and these lands are available at prices ranging anywhere between 4 dollars and 20 dollars per acre. The Canadian Pacific Railway lands, for example, consist mainly of odd-numbered sections along the main line and its branches in the Lake Dauphin district, Manitoba, Saskatchewan and Northern Alberta.

The homestead area wherein the free grants of land are made is in Western Canada, in the great stretch of fertile agricultural land lying between Lake Superior and the Rocky Mountains.

It is in this region that the Grand Trunk Pacific Railway is now building its track through Saskatchewan and Alberta, bringing within touch of the markets of the world hundreds of square miles of magnificent country. The vast region, too, is already pierced, as I have pointed out in other chapters, by the Canadian Pacific and Canadian Northern Railways, and the land thus freely offered to settlers, if not actually abutting upon the railways, is usually within easy reach of them.

Many immigrants are of the tenant farmer rather than of the agricultural labourer class, having a little capital, as well as practical agricultural experience. For such immigrants Canada offers many advantages which can be turned to good account, either by clearing new land, acquired under the most favourable conditions, if not on the free grant principle, or by taking up an improved farm in a locality previously settled. Such farms can be obtained cheaply—at a ridiculously low rate, indeed, when compared with the price of agricultural land in Great Britain. Moreover, the soil ensures the growth of all crops common to the old country, and the cultivation, in addition, of fruit, such as grapes, peaches, tomatoes and other tender produce, which cannot ordinarily with us grow or ripen under open-air conditions.

Land purchasable from the railway companies or from the land-owning corporations varies in price from about 15s. to 40s. an acre, and this carries with it a title equivalent to that of freehold land in England. In the case, for example, of the Canadian Pacific Railway lands, if a holding not exceeding 640 acres in extent is bought for actual personal settlement within one year, the aggregate amount of the principal and interest is divided into ten instalments, the first being payable at the time of purchase, one year's interest at the end of the first year, and the remainder of the instalments annually thereafter. The accompanying table shows the amount of the annual instalments payable on a quarter-section of 160 acres at different prices, the interest in each case being payable at the end of the first year :—

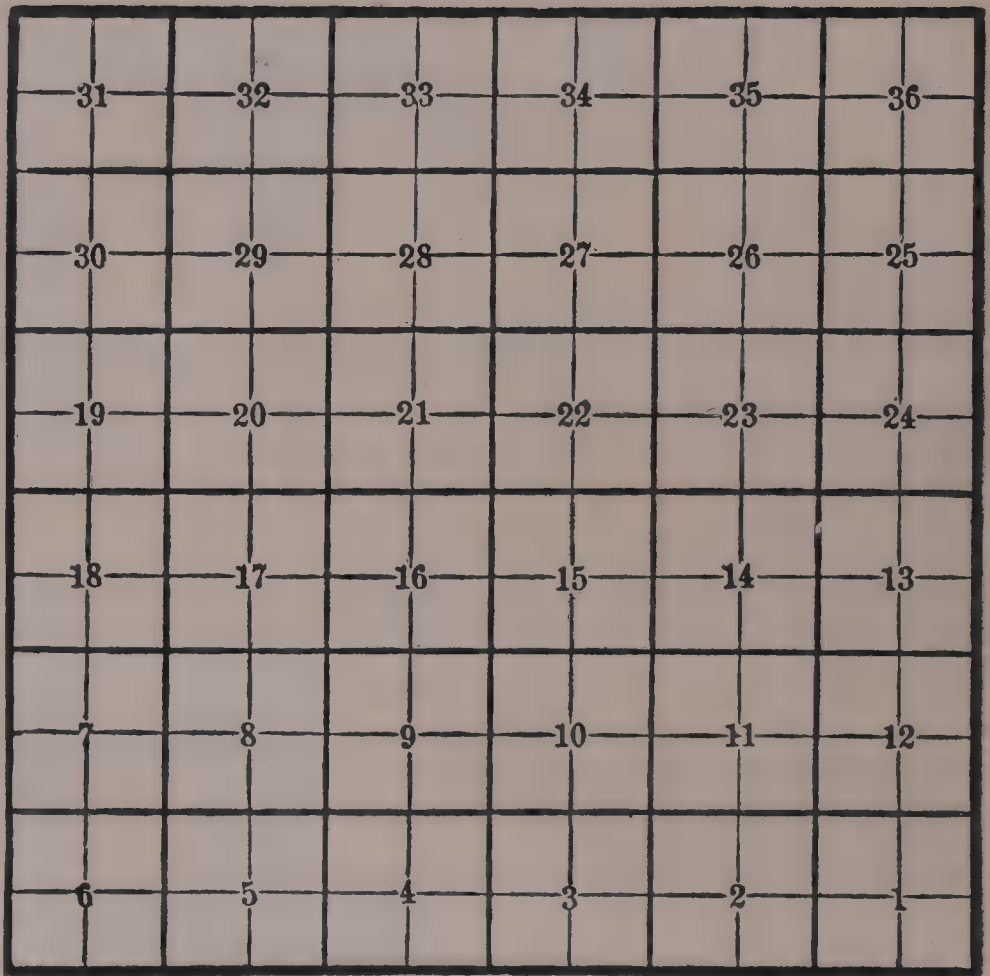
| | Per acre. | 1st instalment. | And 9 equal instalments of |
|--------------------|-----------|-----------------|----------------------------|
| | Dols. | Do's. | Do's. |
| 160 acres at | 4.00 | 95.85 | 80.00 |
| 160 " | 4.50 | 107.85 | 90.00 |
| 160 " | 5.00 | 119.85 | 100.00 |
| 160 " | 5.50 | 131.80 | 110.00 |
| 160 " | 6.00 | 143.80 | 120.00 |
| 160 " | 7.00 | 167.80 | 140.00 |
| 160 " | 8.00 | 191.70 | 160.00 |

Purchasers who do not undertake the settlement conditions are required to pay one-sixth of the purchase-money down, and the

balance in five equal instalments, with interest at the rate of six per cent., interest at the same figure being also chargeable on overdue instalments. The terms on which land can be purchased from various land corporations vary somewhat in the matter of general conditions attaching thereto. But into these it is unnecessary for me to enter.

Here it should be explained that the country is divided into

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PLAN OF A CANADIAN TOWNSHIP.

townships of six miles square, or thirty-six square miles, each mile, of course, containing 640 acres. Then each square mile section is divided into four quarter-sections of 160 acres each. The arrangement of one of these townships is represented by the accompanying diagram. In each case the Government lands open for free settlement would comprise sections 2, 4, 6, 10, 12, 14, 16, 18, 20, 22, 24 and 28, 30, 32, 34 and 36, while the railway

lands for sale—the railway companies having acquired them from the Government in the form of subsidies in recognition of railway construction—would be the odd-numbered sections, 1, 3, 5, 7 and so forth, with the exceptions of sections 11 and 29, which would be reserved by the Canadian Government for school purposes, and, in the case of the even-numbered sections, numbers 8 and 26 would be for sale by the Hudson's Bay Company. Thus any even-numbered section of Dominion land in Manitoba or the North-West, excepting numbers 8 and 26, which have not been homesteaded, and are reserved to provide wood lots for settlers or for other purposes, may be homesteaded upon by any person



EMIGRANTS LANDING AT QUEBEC.

who is the sole head of a family, or any male over 18 years of age, to the extent of a quarter-section of 160 acres, more or less.

To secure entry, attendance must be made in person at the local land office, where a fee of £2 10s. is charged for an ordinary homestead entry. At the end of three years application for patent should be made by the settler, after having given six months' notice in writing to the Commissioner of Dominion Lands at Ottawa of his intention to do so, before the local agent, sub-agent, or homestead inspector. The settler should be especially careful, however, not at any time to allow his absence from his homestead to exceed the stipulated six months, otherwise he may find that

his entry has been cancelled and his land lost to him. Immigrants can receive, at the Immigration Office in Winnipeg, or at any Dominion Lands office, or at the Department of the Interior at Ottawa, information as to the lands that are open for entry, and from the officers in charge, free of expense, advice and assistance in securing lands suitable for their purposes.

It may be well to set out at this point the various items and the amount of cash ordinarily required to establish a settler on a 160-acre homestead as a wheat farmer, and these I give on the authority of Mr. W. T. R. Preston, the well-known Immigration Commissioner for Canada in the United Kingdom, who submitted them some little time ago for publication in *The Financier*. These items are as follow :—

| | £ | s. | d. | £ | s. | d. | £ | s. | d. |
|-----------------------------|-----|----|----|-----|----|----|-----|----|----|
| House and sheds.. .. | 30 | 0 | 0 | 50 | 0 | 0 | 90 | 0 | 0 |
| Team of horses or oxen .. | 20 | 0 | 0 | 35 | 0 | 0 | 40 | 0 | 0 |
| Harness.. .. | 4 | 0 | 0 | 5 | 0 | 0 | 5 | 0 | 0 |
| Wagon | 13 | 0 | 0 | 13 | 0 | 0 | 13 | 0 | 0 |
| Plough | 3 | 5 | 0 | 3 | 5 | 0 | 3 | 5 | 0 |
| Harrows | — | | | 2 | 15 | 0 | 2 | 15 | 0 |
| Seeder (press drill) .. | — | | | 15 | 0 | 0 | 15 | 0 | 0 |
| Reaper and binder .. | — | | | — | | | 30 | 0 | 0 |
| Mower and rake .. | — | | | — | | | 20 | 0 | 0 |
| Household furniture .. | 10 | 0 | 0 | 15 | 0 | 0 | 15 | 0 | 0 |
| Provisions for one year .. | 10 | 0 | 0 | 20 | 0 | 0 | 20 | 0 | 0 |
| Seed for 20 acres, about .. | 4 | 0 | 0 | 4 | 0 | 0 | 4 | 0 | 0 |
| Feed oats and hay .. | 5 | 0 | 0 | 10 | 0 | 0 | 10 | 0 | 0 |
| Milch cows | 6 | 0 | 0 | 12 | 0 | 0 | 14 | 0 | 0 |
| Pigs | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 |
| Fowls | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| | 107 | 5 | 0 | 188 | 0 | 0 | 285 | 0 | 0 |
| Say, in round figures .. | 120 | 0 | 0 | 200 | 0 | 0 | 300 | 0 | 0 |

These figures roughly represent the settler's outlay if he wishes to make the most of his land from the start. Nevertheless, there are now many prosperous farmers in Canada who commenced operations without practically any capital by merely cultivating the 15 acres necessary to comply with the provisions of the law, and then gradually increasing the area by breaking up more land year by year. Of course, in cases where the new settlers are men with money and experience, the opportunities for making a rapid and highly payable return are boundless. Especially does this seem to be the case in the matter of live-stock farming, for over large areas of Western Canada the native grasses themselves supply practically all that is necessary for the sustenance and fattening of the live-stock ready for market, without recourse to any artificial feeding-stuffs whatever; and, as I have pointed out in a preceding chapter, in many districts the winter is sufficiently mild to render it unnecessary to provide shelter for live-stock at any time of the year.

Any question of emigration to Canada must necessarily involve climatic considerations. Amongst many persons the Canadian winter is still regarded as one which involves much hardship, and, as the word "Canada," as a geographical expression, applies to half a great continent, doubtless in some of the more exposed regions there is some truth in the winter severities of which one has heard. But it is a mistake to assume that any such abnormal climatic stress is applicable to all Canada. This, according to Mr. Preston, arose a good deal through a misinterpretation of the thermometrical readings. "When," as Mr. Preston expressed himself in *The Financier*, "people heard that the glass frequently went down to a good many degrees below zero, and that sleighing went on for months together, they came to the conclusion—not, perhaps, unnaturally—that the Canadian winter was very trying. Actually, over the part of the Dominion where settlement has taken, and is, taking place, the winter, as a rule, is less harmful and involves less discomfort than the average winter in England—particularly the North of England. The climate of Western Canada is such that a greater variety of vegetables can be grown in the open than can be produced under the same conditions and method of culture in England. Tomatoes, cucumbers, pumpkins, marrows, squash, melons and Indian corn thrive and ripen in the open ground. And every kind of table vegetable, such as asparagus, artichokes, beetroot, beans, cauliflowers, cabbages, celery, carrots, peas and rhubarb, is easily grown in profusion. In the exhibitions of fruit and vegetables that are held the weights attained are very great—for instance, cabbages 30 lbs., cauliflowers 10 lbs., squash 150 lbs., turnips 23 lbs., onions 20 ozs., potatoes 3 lbs. That gives you an idea of what the soil and climate are capable." All this quite confirms what I heard on every hand while I travelled through Canada.

Now comes the question : Who should emigrate ? It certainly cannot be too strongly urged that Canada at the present moment is not a happy hunting-ground for the clerk, or those who, without berths or expectations arranged in advance, yet capable of wielding a pen efficiently, are without any speciality or specific training calculated to be of service in a new country. What Canada wants, I again repeat, is labour, and unskilled labour rather than skilled labour. For farm hands there is an unlimited demand, and, although living expenses are generally higher than at home, the wages paid are, nevertheless, better in proportion. The wages of the average male farm hand, including board and lodging, run from 20 to 30 dollars per month during the summer, and from 5 to 15 dollars during the winter. In the North-Western Territories wages run very much about the same, but they are rather higher in British Columbia. In Ontario wages range for

farm service from 20 to 25 dollars per month, including board, washing, &c., or run to 31 dollars per month during the busy season, which ordinarily extends over about seven months in the year, without board. In New Brunswick and Nova Scotia the wages, with board, average from 10 to 20 dollars per month, the period of such service extending from about May to November. At the same time, first-class hands can make very much more during the harvesting season in Manitoba, Saskatchewan and Alberta, it being no unusual thing for a capable man to earn 45 dollars a month, in addition to his board. In British Columbia 40 dollars will be about top rate, and in Ontario 35 dollars, with board.

Married couples who are really good farm hands can make a very good living in Ontario, earning anything between 200 and 300 dollars yearly, without board, but with a house, garden, milk and firewood. In Manitoba this would run to about 300 dollars per annum, with lodging. The wages of female farm servants range from 7 dollars to 12 dollars a month, with board and lodging, in Manitoba and the North-West, while the figures run, perhaps, 5 or 6 dollars higher in British Columbia.

Next, probably, to farm and labour hands, the greatest requirement of Canada is female domestic servants, for whom there is an ever-growing demand in every city, town and village throughout the Dominion. Excellent arrangements are made by the agents of the Women's Immigration Society, at Quebec and Montreal, for the reception of girls on terms which are merely nominal. Considerations of space prevent me from entering into details, as to which, however, particulars are readily available on application to the emigration agents or the Canadian Pacific and other Canadian railway companies. There is a growing demand, too, for milliners and dressmakers, and also for factory hands. Market gardeners will find openings in the newer districts of the West, especially if they have sufficient capital to enable them to start in a small way on their own account.

The rapid increase of building and industrial operations throughout Canada, and notably in the West, creates a demand for mechanics, and more particularly carpenters, especially in the spring and summer, and good workmen in the building, engineering and manufacturing trades have little difficulty, as a rule, in securing work at wages which have a tendency to increase. In most mechanical operations, however, it must be borne in mind that the winter is the slack time, and during this off-season many have to turn their attention to other work than that of their ordinary trades. It can hardly be said that there is a demand for mining labour, except in districts which are for the time prosperous, and then high terms may be secured, while many good chances present themselves for keen men.

But I might continue in this vein indefinitely, without, after all, serving any very practical purpose, for a man's prospects of success really depend mainly on his own capabilities and efforts. One will succeed and make a respectable competency, while another proves himself an absolute failure. Sobriety, industry and straightness are essential qualifications, for Canada is no place for the wastrel or the lounge, although, to be sure, there are many of them to be seen there who meet with difficulty enough in keeping body and soul together. But work, hard work, tenacity of purpose, plod and perseverance, which will effect wonders anywhere, place a man nearer the high road to fortune in Canada than in most other countries. There is room—plenty of room; and more often than not it is the fault of the man, and not of his environment or of the country, if he fails.

CONCLUSIONS :

That never before in the history of Canadian Immigration has the influx of new settlers been so great ■ during 1906.

That Immigration for 1907 promises to be on a still larger scale.

That now is the time for British Emigrants to proceed to the West, while yet there are eligible farm lands obtainable either by free grant or by purchase, within easy reach of the railways.

That unless farm lands are secured promptly the best will have been picked up by the unprecedented inrush of American settlers.

That the Canadian Land and Settlement Laws are very equitable.

That the British Emigrant with small capital, and especially when possessing agricultural experience, has splendid opportunities for rapidly securing for himself ■ ample competency.

That while the wastrel and the failure had much better stay at home, for the sober, industrious and honest hard-worker Canada offers a field for advancement unequalled, probably, by any other in the British Empire.

CHAPTER V.

CANADA AS A FIELD FOR TRAVEL AND SPORT.

THE BRITISH TOURIST AND HIS TRAVEL NOTIONS.—AN ALL-BRITISH TRIP FROM THE OLD WORLD TO THE NEW.—THE CONDITIONS OF RAILWAY TRAVELLING IN CANADA.—THE RESOURCES OF CANADA IN SCENIC ATTRACTIONS.—TRAVEL AND SPORT IN EASTERN CANADA.—THE HIGHLANDS OF ONTARIO.—THE ATTRACTIONS OF THE WEST FOR TOURISTS AND SPORTSMEN.—OVER THE ROCKY MOUNTAINS AND INTO BRITISH COLUMBIA.—CANADIAN FISH AND GAME LAWS.—CANADA THE COMING PLAYGROUND FOR THE PEOPLE OF THE OLD COUNTRY.

IN the foregoing chapters I have dealt at more or less length with the principal aspects of the material life and progress of Canada, but there is one more phase which is calculated to have a very considerable influence in promoting, both directly and indirectly, the prosperity of the Dominion. I refer to the immense and possibly unique scope that British North America offers for travel in pursuit of health or pleasure, and for sport, in nearly all those of its aspects which appeal to the healthy Briton who revels in outdoor life.

It has been very truthfully remarked that one of the anomalies which the sons of John Bull dearly love to hug to their bosoms is a desire to visit the sights and resorts of any country rather than their own. They will "do" Rome and the Rhine, the German Spas and the Riviera, Scandinavia and the Land of the Pyramids—anywhere so long as it is "abroad." Even the noisy and untutored 'Arry from the East End of London will prefer a holiday at Boulogne, so conveniently accessible, and so inexpensive, to one spent at his native Margate or Southend, for he can then boast, as he slaps his chest, the perfect happiness of having been "abroad." One can have little sympathy with this sort of feeling, when no country in Europe offers such varied and beautiful sights within modest compass and distance as our own

islands. When the good things they offer have been fairly sampled—when the “Grand Tour” of the Highlands has been made, the English Lakes and Killarney, the Midland Spas and the beauties of Devon, the rugged grandeur of Connemara, or the Western Hebrides, and, perhaps, the balmy watering-places of the south, the Wealds of Suffolk and the Broads of Norfolk enjoyed—when these, or some of them, have been “done” it may be time to seek fresh fields and pastures new in other countries than our own. And then let the “all-British” principle by preference prevail, in which connection the claims of Canada assert themselves pre-eminently.

Every aspect of travel seems to be embraced within the scope of a trip to Canada. There is first the bracing voyage across the always breezy, and sometimes turbulent, Atlantic—which turbulence, by the way, even when accentuated to the height of a gale, is an experience which no one should miss. In the Maritime Provinces, in Quebec, and parts of Ontario the visitor may make acquaintance with bits of old Canada which have passed through the *sturm und drang* of times less peaceable than these, and which the iconoclastic spirit of modernity has not sufficed wholly to obliterate. Then in these same provinces the modern life of Canada, with all its dollar-loving strenuousness and its facilities for rapid development and the turning of natural resources to industrial account, may be studied, pleasingly interspersed with which conditions are elements of scenic beauty, embracing every aspect of the picturesque, from the sylvan and the simply rural to the imposing grandeur of primæval forest, the magnificence of cascade and waterfall, and lone eminences of mountain and cliff. As one proceeds Westward these elements become broadened and accentuated, and a sense of distance and spaciousness asserts itself. Vast areas of forest-bound land and equally boundless tracks of uncleared prairie suggest the immensity of our Western domain, while oceans of golden grain justify the claim of the great West to be the “Granary of the Empire.” Further westward a new variety of scenery presents itself as the Rocky Mountains are traversed, and the beauties of British Columbia, where all Nature seems to have run amuck and heaped picturesqueness upon picturesqueness, unfold themselves. Westwards still an unending variety of attraction is ever forthcoming, until the Pacific Coast is reached, and the traveller feels that he has reached the extremity of the West and may enter if he choose the gateway of the Far East.

Such, in brief, is a sort of cinematographic summary of an all-British trip from the Old World to the furthest extremity of the New, and, as I have in previous chapters indicated, the traveller has a choice of routes even at that, alike by sea and land.

If the strictly all-British principle prevails, he will ship himself across the Atlantic by the magnificent liners of the Canadian Pacific Railway Company to Halifax or St. John in winter, or to Quebec and Montreal in summer. Or he may select, if he so prefer it, one of the splendid steamers of the Allan or Dominion lines. If less punctilious in the matter of patriotism, he may land from a Cunard, a White Star, an Anchor, an American, or an Atlantic Transport liner at New York, and then travel by train along the banks of the famous Hudson River to Albany, and thence *via* Saratoga and along the shores of Lakes George and Champlain, to Montreal. Either method of reaching Canada has advantages of its own, but in the summer the St. Lawrence, and the selection of the ancient city of Quebec as the port of disembarkation, have, for those travelling mainly for health or pleasure, many advantages on the score of convenience and picturesqueness.

Once in Quebec or Montreal there is ample choice for proceeding westwards by the great trunk lines of railway, chief amongst which are the Canadian Pacific and the Grand Trunk, while in other directions than a straight westerly one various other companies' railway systems offer the most abundant facilities for comfortable and, for the most part, rapid transit. Probably none of the Canadian railways, however, surpass the Canadian Pacific and the Grand Trunk systems for the purpose of pleasure travel or for gaining access to the most desirable districts for shooting, fishing and mountaineering, and it is not too much to say that some of the grandest scenery in the world can be viewed from the fast expresses of the Canadian Pacific Railway as they steam rapidly onwards over their fine road-bed through the forest and prairie land to the West, over the Rocky Mountains, and onwards to the Pacific seaboard. The great cities of Eastern Canada will of course have a magnetic influence upon the attention of the traveller; and Quebec, probably the most picturesque city of the continent, and certainly the most quaint and historic; Montreal, one of the finest cities in America, and the chief commercial city of the Dominion; Ottawa, the political metropolis of Canada, and sometimes described as the most beautifully situated capital in the world; Toronto, the second city in the Dominion, and of rapidly growing commercial and industrial importance—these cities, of which I have already had a good deal to say in previous chapters, will all repay visits.

For the purposes of headquarters, or an initial point for a transcontinental journey, no more convenient centres could be selected than Montreal or Toronto. A few hours' journey will take the tourist to the world-famed Falls of Niagara; and the westward journey may be resumed by one of the Canadian

Pacific lines to Owen Sound and Georgian Bay, and thence by the company's Clyde-built steamers for a two-days' trip across Lake Huron to Sault Ste. Marie, where the vessel is lifted through enormous locks to the level of Lake Superior, and then, after steaming across this fresh water sea, Port Arthur and Fort William on Thunder Bay are reached, whence one can continue the railway journey Winnipeg-wards by either the Canadian Pacific Railway or the Canadian Northern Railway.

Here let me remark that the conditions of railway travel in Canada, especially for visitors from Europe who contemplate a transcontinental journey, differ largely from those which obtain at home. In the first place luggage can be checked through from the port of landing to all the principal points in the Dominion. The luggage is examined at the dock by the Customs officers, after which a baggage cheque stamped with a number is affixed to each piece, a duplicate being given to the owner. By this means travellers are enabled at the end of their journey to reclaim their luggage either personally or by proxy, and as it will only be given up by the railway agents in exchange for the duplicate cheque, the chances of loss or mistake are reduced to a minimum.

Then, again, in Canada the railway carriages do not correspond in description to those on British railways. The first-class cars provided with sleeping accommodation resemble the Pullman cars at home, but are usually larger and of superior build and equipment. First-class cars *minus* sleeping accommodation more nearly resemble second-class carriages in this country, and the second-class carriages are about equivalent to those of the third-class with us, with the distinct advantage, however, of being transformable into sleeping cars at night. Moreover the carriages are provided with lavatories and supplies of water, and are heated in winter by hot-water pipes. The traveller may, indeed, if he wishes enter his carriage at Montreal and travel right through without a change, breakfasting, lunching, dining and sleeping on board until Vancouver, on the Pacific Coast, is reached, four or five days after commencing the westward journey. In the matter of baggage, such personal effects as are necessary for the journey not exceeding 150 pounds in weight will be checked on one full passage ticket, and 75 pounds on a half ticket. Beyond this weight personal baggage is charged for extra, and no baggage weighing more than 250 pounds will be received for conveyance by passenger train, but is forwarded by freight train.

In proceeding now to indicate to the reader, with that degree of brevity which the limitations of space impose upon me, some of the principal pleasure travel districts and tourist and health resorts in Canada, I must preface my rapid survey with the

confession that they are not given in all cases as the result of personal experience. My trip through Canada was essentially a business one—that is to say, I had a fixed purpose in view : to gather material at first hand from which I might be able accurately to gauge the present financial and industrial position and prospects of the Dominion. My stay in Canada was necessarily of restricted duration, and I had therefore little time at my disposal to devote to purely pleasure travel, mere sight-seeing from a tourist point of view, or indulgence in sport of one form or other, for all of which Canada offers such a wealth of attraction. Still, from what I was able to sample, I was placed in a position to appreciate the choice which the bulk was capable of offering, and opportunities were not wanting which enabled me to gather from authoritative sources some tolerably vivid impressions of Canada as a happy hunting-ground for the sportsman and the tourist.

It may be taken as a fact beyond dispute that probably no country in the world offers a greater variety of scenic and picturesque attraction than the Dominion. It may be said in a sense to have been designed by Nature for the express purpose of catering for the requirements of all classes of tourists and globe-trotters, and of sportsmen of all persuasions, from the placid-minded shot who is happy with an occasional wild duck, a partridge or a hare to the credit of his gun, and would consider the capture of a prairie chicken as a trophy of the chase beyond compare, to the ambitious hunter who will be content with nothing less than a twelve or eighteen-point moose, a bounding antelope, a lordly caribou, or the excitement of a close negotiation with a Rocky Mountain grizzly bear. The difficulty in dealing with so huge a territory is that it presents such an *embarras des richesses* as to place the writer amidst a maze of good things from which it is difficult to deal with representative samples intelligibly.

Taking Eastern Canada first, it would be absurd to suggest that the Maritime Provinces of Nova Scotia and New Brunswick were devoid of picturesque or sporting interest. Quite the reverse is the case, and much that is full of charm and scenic interest, together with occupation for rod and gun, presents itself to visitors bound on explorations for pleasure. The districts bordering on the Lower St. Lawrence River, in the Province of Quebec, are also full of varied interest, and none is better worthy of a visit than the Saguenay River, which issues from Lake St. John, situated more than a hundred miles inland. It may be readily reached by steamer from Quebec, and the river is in many respects unique. For much of its length it measures about a mile from bank to bank, which in many cases range from several hundred to more than two thousand feet in height, and are as precipitous

and bleak as one could well imagine. The scenery has a grandeur of its own, almost impressive in its cold, unbroken gloom. From Chicoutimi, beyond which navigation is not, I believe, possible, a railway will take the tourist on to Lake St. John, on the shores of which there is a large agricultural population, while the streams abound in fish which seem to be the most unsophisticated of bait-swallowers. Between the mouth of the Saguenay River and Quebec is Murray Bay, a favourite resort of anglers and golfers, and especially of those of American origin. The neighbourhood is as picturesque as its history, the old village of Murray Bay nestling comfortably in an old-world fashion by the banks of the Murray River, the whole being characteristically French-Canadian. In a previous chapter I have referred to the specific attractions of Quebec, amongst which, apart from those of the city itself, the Falls of Montmorency claim especial mention; and the whole neighbourhood, and the contiguous districts further afield, abound in elements of attraction for the casual visitor or the enthusiastic sportsman.

Greater scope and variety still exist for the sightseer and sportsman in that part of the sister Province known as the "Highlands of Ontario." The entire district, which is penetrated mainly by the Grand Trunk Railway, is of vast extent, covering many hundreds of square miles, and may be broadly defined as lying on the eastern shore of the Georgian Bay, between the counties of Simcoe, York and Victoria on the south, and the district of Parry Sound on the north. It is for the most part as ruggedly picturesque and broken as one could wish to see. Great stretches are covered with gigantic forest growths—beautiful spreading maples, fragrant balsams, stately hemlocks and the gauntest of pines, with a wealth of miscellaneous forest life in trees and undergrowth which is bewildering in its profusion. Geographically, the Highlands of Ontario are divided into several districts, chief amongst which, from tourist or sporting points of view, are the Muskoka Lakes, the Lake of Bays and the Georgian Islands, with, much further to the north, the Temagami Country, which is an unrivalled region for the sportsman and the camper, and further south the Kawartha Lakes, set some distance inland from the greater Lake Ontario.

They form an extraordinary region—these Highlands of Ontario—recalling in many places the Highlands of Scotland, the Lake District of England, and the beauties of Killarney, but on vastly greater lines, and with characteristics distinctly their own. Quite a tenth part of the entire area is covered with water, there being something like 800 lakes of all sizes and conditions, from the merest duckponds to large expanses of island-bespeckled lake-surface, frequently measuring thirty miles or more in their

greatest length. Many of these sheets of water are veritable inland archipelagoes, so copiously studded are they with islands, most of them beautifully wooded and fringed with undergrowth to the water's edge. To and from these lakes are innumerable streamlet and river connections, and the presence of so much brisk-flowing, pure water contributes, along with the high altitude of the district—in many cases more than 1,000 feet above the level of the sea and 400 above the level of the highest lake of the St. Lawrence system, Lake Superior—to create a delightfully bracing and exhilarating atmosphere, which is the sworn enemy of maladies of the hay fever and pulmonary type, and to breathe



THE AUTHOR'S SHOOTING "OUTFIT" IN THE WEST.

which is a life policy for the lungs and an unfailing tonic for appetite and digestion.

Of the several delightful districts embraced within these "Highlands" none surpasses in the very plethora of their attractions the Muskoka Lakes, of which the principal are Lakes Muskoka, Rosseau and Joseph. A veritable paradise for the tourist, the camper, the canoeist and the sportsman, the angler in particular will find his inmost desires most fully met, especially, perhaps, in the smaller lakes and their tributary streams, many of which seem to have carved their channels and courses through solid rock and sometimes almost impenetrable forest. Salmon trout are abundant ; bass and pickerel are as game and plentiful

as the heart of Walton could desire. A 15 or 20 pound salmon trout is nothing out of the way in a day's catch, and is frequently exceeded, while two or three bass of from three to five pounds apiece is a commonplace basket for the keen angler to secure before his breakfast. The Muskoka region, too, is prolific in game, large and small, and is a haven of bliss for the naturalist. Nature is seen at her best, and the true wilderness is made accessible to the tourist without the risk of being ruined by the attentions of excursionists and unwelcome visitations of what we at home call day-trippers. Delightful lake trips on splendidly-appointed steamers add to one's pleasures, the accommodation afforded by the few hotels and inns is sufficient if not superabundant, and the tourist fares well. If, however, he betakes himself to the palatial Royal Muskoka Hotel, charmingly situated on a picturesque islet in Lake Rosseau, he can enjoy all the luxuries of the most fastidious modern life, purveyed in a manner and amid surroundings which are probably unsurpassed in all America. He who loves camping out will find a wealth of facilities freely at his disposal, and no climate and no scenery in the world can provide a surer antidote for brain-fag and the condition of being "below par" than delightful Muskoka.

What I have said about Muskoka applies in equal measure, although in differing ways, to the famous Lake of Bays, which is unsurpassed as a shooting ground for big and small game. The group of lakes in this district and their tributary streams yield heavy baskets of salmon trout, speckled trout, bass, perch and other smaller fish. Desirable camping grounds are many, and may be reached on foot and by steamer on the lakes; while at Huntsville and other points there is excellent hotel accommodation. The Maganetawan River, which, when visited, makes the tourist just 171 miles north of Toronto, is just freshly opened out to steamboat navigation and pleasure travel, and is one more El Dorado amongst the many for canoeist and sportsman which Northern Ontario provides. Within a few miles is the Lake of Many Islands, and one of the finest fishing haunts in these Highlands.

Until quite a few years ago nearly all this region was visited only by nomadic Indians and the war-canoes of the Hudson's Bay Company, and notwithstanding the incursion of an increased number of visitors, the sense of remoteness and uninhabited wilderness which it presents remains practically unaltered. A district in point is Temagami—a name derived from a longer Indian word with which I need not trouble my readers. It comprises a forest reserve covering an area of 1,400,000 acres, controlled by the Ontario Government. Situated at an altitude of more than a thousand feet above the sea-level, it is a region of dense

forest, lakes and rapid-coursing rivers, the first swarming with game, and the last two prolific in easily-tempted but the gamest of fish. Three hundred miles from Toronto, the district is an ideal one for camping and sport, and the magnificent air, pine-scented and exhilarating, seems to suggest that man might live there until he became as old as Methuselah. Then I might add more about the Haliburton region, Lake Nipissing, and the French River district, the Kawartha Lakes—a favourite resort of camping parties—and the extraordinary resources in scenery and game presented by the Algonquin National Park of Ontario. But I should be to a great extent only paraphrasing what I have already said if I were to enlarge upon their attractions and resources. More than a passing word, however, if space permitted, would be due to the remarkable archipelago known as the Thousand Islands, which reaches from Kingston, at the outlet of Lake Ontario, for some forty miles, to Brockville, presenting every conceivable variety of island formation. But more impressive even than that are the islands of Georgian Bay, which are said to number about 30,000. All round about here the bay, and the rivers which are tributary to it, swarm with game fish, and especially whitefish, speckled, lake and salmon trout, black bass, monster maskinonge and the tenacious pickerel. Much, too, might be said for the scenic and sporting attractions of the Rideau River and Lakes, the Charleston, Little Sand, and a score of other lakes and rivers of a remarkably watered region. But I must now, perforce, move further west.

In Western Ontario one finds fascinations of quite another character, not less full of interest and attraction than those of the Highlands of the Province. Not far from the track of the Canadian Pacific Railway are the beautiful fishing waters of Nipigon, most celebrated of all streams paying tribute from the north shore to Lake Superior. Giant trout are the prolific speciality of this water, and eleven-pounders are quite a commonplace. Lake Nipigon, too, yields a ready harvest of trout, and supplements this generosity by a feast of beauty for the eye, for its 3,500 square miles of surface are dotted by nearly 1,000 islands, large and small, whilst it is the natural reservoir of countless streams, many of them navigable for canoes, and affording an endless source of pleasure for the tourist and sporting camper. All the country round about is rich in small game and big, moose and deer affording fine sport for the stealthy hunter.

When one has traversed the Lake of the Woods region and entered Manitoba, the heart of the great grain country is pierced. Here, near the harvest season, the land as far as the eye can reach—sometimes for a hundred miles at a stretch, if the eye could embrace such a 'scape—is an ocean of golden waving grain,

unlike anything that Europe can show, as are also, further afield in Saskatchewan and Alberta, the vast expanses of prairie which kiss the horizon in every direction. Winnipeg, the capital of Manitoba and the "Gateway of the West," no tourist can afford to ignore, but as I have already described its predominating features I need not further enlarge upon them here. The other rising cities of the West, now rendered so accessible by the enterprise of the Canadian Northern Railway Company, are also in many cases—Edmonton and Calgary, Regina and Brandon, in particular—worth visits, as is also the country surrounding



BANFF, IN THE ROCKY MOUNTAINS: A FAVOURITE HEADQUARTERS FOR TOURISTS.

them: their characteristics are distinctive, and quite unlike what has been seen further east. And, then, all the vast prairie region, and the thickly forested and watered districts which abut upon it, swarm with wild fowl and game. Prairie chickens, snipe, grouse, plover, wild duck and geese, crane and a host more of wild fowl abound; and bigger game still, especially in the Lake Winnipeg district and further afield in the less-settled neighbourhoods—moose, elk, deer and caribou, and even bear—are common enough. In fact the whole country, except in the immediate vicinity of the towns, affords abundant scope for the rifle and gun as well as rod and line. One might enlarge in detail

indefinitely, and yet leave half the story untold. I have, therefore, contented myself by merely touching the fringe of a big and fascinating subject.

Then through and over the Rockies into British Columbia ! Verily another world unfolds itself as the last 500 miles between the great prairie belt of the West and the Pacific Ocean are traversed. Nature is seen in her wildest and most grotesque mould ; the smashed-up mountains, the yawning valleys, the giant forest trees perched on precipitous cliffs, the rushing torrents, the towering, snow-clad peaks reaching nearer to heaven than aught else on the North American continent—all of these, and vastly more that my pen is too feeble to describe, seem to present themselves as so many rugged memorials of Nature's prehistoric convulsions, more enduring than parchment records, yet made accessible to mankind through the indefatigable purpose and the unconquerable enterprise of modern engineering science. Whether the tourist's objective for the time be the palatial Banff Springs Hotel, perched high in the Rockies in the Canadian National Park—a splendid headquarters, be it said, for fishing excursions or shooting expeditions in quest of waterfowl and small game, mountain sheep and goat, caribou and bear—Mount Stephen House, fifty miles further on, or any other of the Canadian Pacific Company's chain of *châlet*-like hotels, the scope for exploration of some of the world's grandest scenery, for steamer sails on lake and river, picturesque trips by packhorse, and for sport is unrivalled in all America. The Selkirks should only be tackled for their big game by seasoned sportsmen, with nerves like steel wire, and impervious to fatigue and weather, for the region is the wildest of the wildest West. I must skip the Arrow Lakes, which I advise no tourist to miss, and much that is full of sporting and picturesque interest—for even the foot-hills of the Rocky Mountains are as full of charm as they are rich in handsome elk, lordly caribou (the latter, of course, being the reindeer of North America), and other game—and leave my peripatetic reader safely landed at Vancouver, with quite a further world of interest to explore round about this beautiful region of the Pacific Coast.

Before laying down my pen, a word or two of caution will be useful to intending sportsmen visiting Canada. Plentiful as fish and game are, and wilderness and open land as much of the hinterland and new country are, it must not be assumed that sportsmen are allowed a free hand. As a matter of fact, the fish and game laws are definite and strictly enforced. I have no space in which to enter fully into their details, but I advise sportsmen to make themselves familiar with them before proceeding on any serious hunting, shooting or fishing expedition.

In Ontario, for example, non-residents may not hunt any bird or animal without a licence, which licence must be endorsed by the person to whom it is granted, and is for one season only. It may be obtained on application to the Chief Game Warden at Toronto. Then the open season for deer, moose, or caribou extends only from November 1st to 15th, both days inclusive, and only two deer may be taken in one season by one person, and no elk shall be killed at any time in Ontario. The open season for other game and fish varies, but is clearly defined, and a fishing licence for non-residents in Ontario waters costs two dollars. Fish below certain standards of length or weight have to be returned to the water uninjured. The Quebec fish and game laws differ considerably from those of Ontario, the open season for deer and moose, for instance, extending from September 1st to December 31st, and for caribou from September 1st to January 31st. Only one moose, two deer and two caribou may be taken by one person during one season. The laws which exist in the Western Provinces and British Columbia should also be studied before engaging in sport therein.

In these and other particulars the intending tourist, health-hunter or sportsman would do well to consult the literature freely issued on this side by the Canadian Pacific and Grand Trunk railways, and by other systems on the other side. The illustrated booklets available are admirable of their kind, and almost indispensable. As time goes on and travel and sport in Canada become popular with people here at home, they will be in increasing demand, for assuredly this vasty new world is a huge prospective playground for the people of the Old Country. It is safe to prophesy that the time is not far distant when Canada will be "the fashion for sport and travel." Thither will gravitate the jaded and the brain-fagged from our British cities, and pleasure-seekers who to-day betake themselves yearly to the Rhine and the Alps, the Italian Lakes and the German Spas will find yet more sterling attractions, sweetened by all the ties and sentiments that spring from a common racehood and kinship, in the sister-land across the seas. There the grandest scenery and the most prolific sporting resources in the world, the warmest of welcomes and the most generous of hospitality await their coming.

CONCLUSIONS :—

That the scope for Pleasure and Health Travel afforded by Canada is unrivalled in the world.

That the resources of the Dominion in all that makes for prolific Sport with rod and gun are unequalled by those of probably any other country.

CONCLUSIONS (*continued*):

That Canada is a coming playground for the people of the Old Country, who will find in the land of their kinsmen greater and ~~more~~ enduring attractions than those afforded by foreign countries.

That the increased incursion of tourists and sportsmen into Canada will, both directly and indirectly, exercise a powerful influence in promoting the prosperity of the Dominion.

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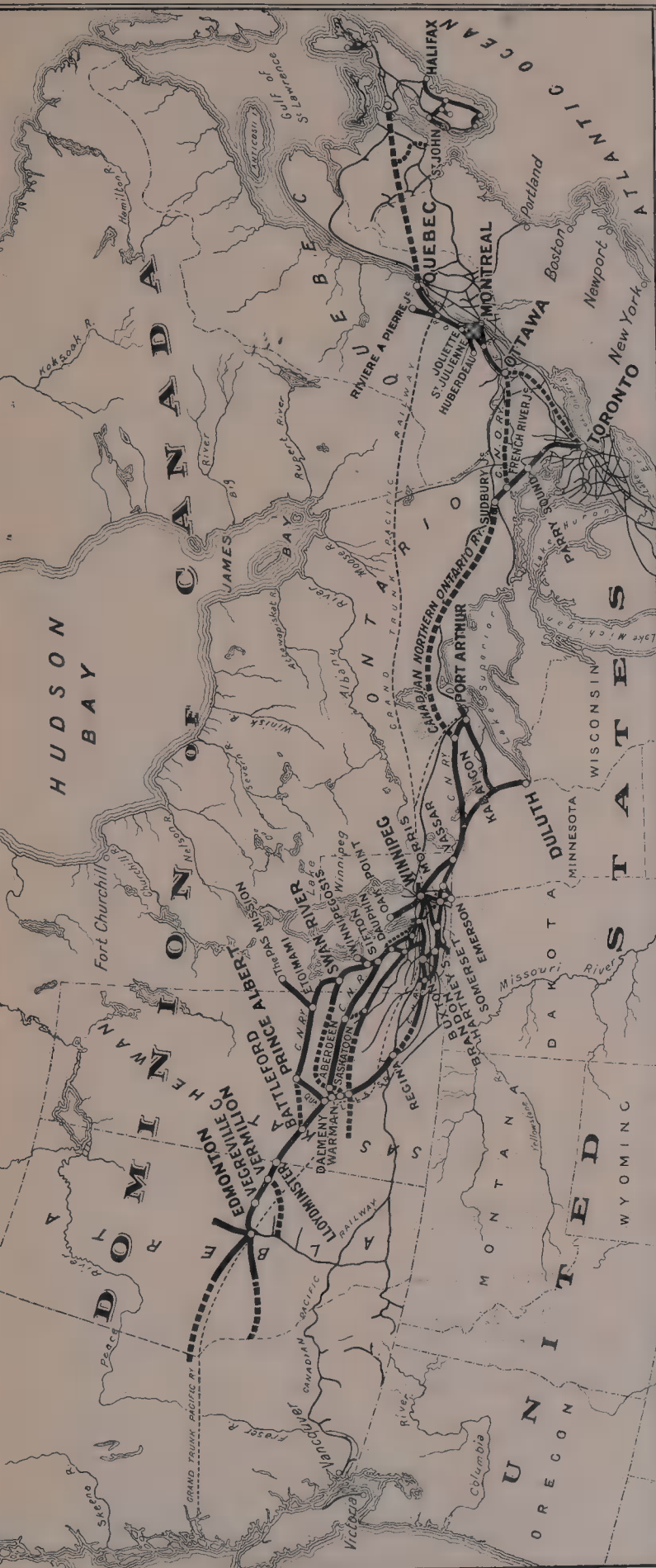
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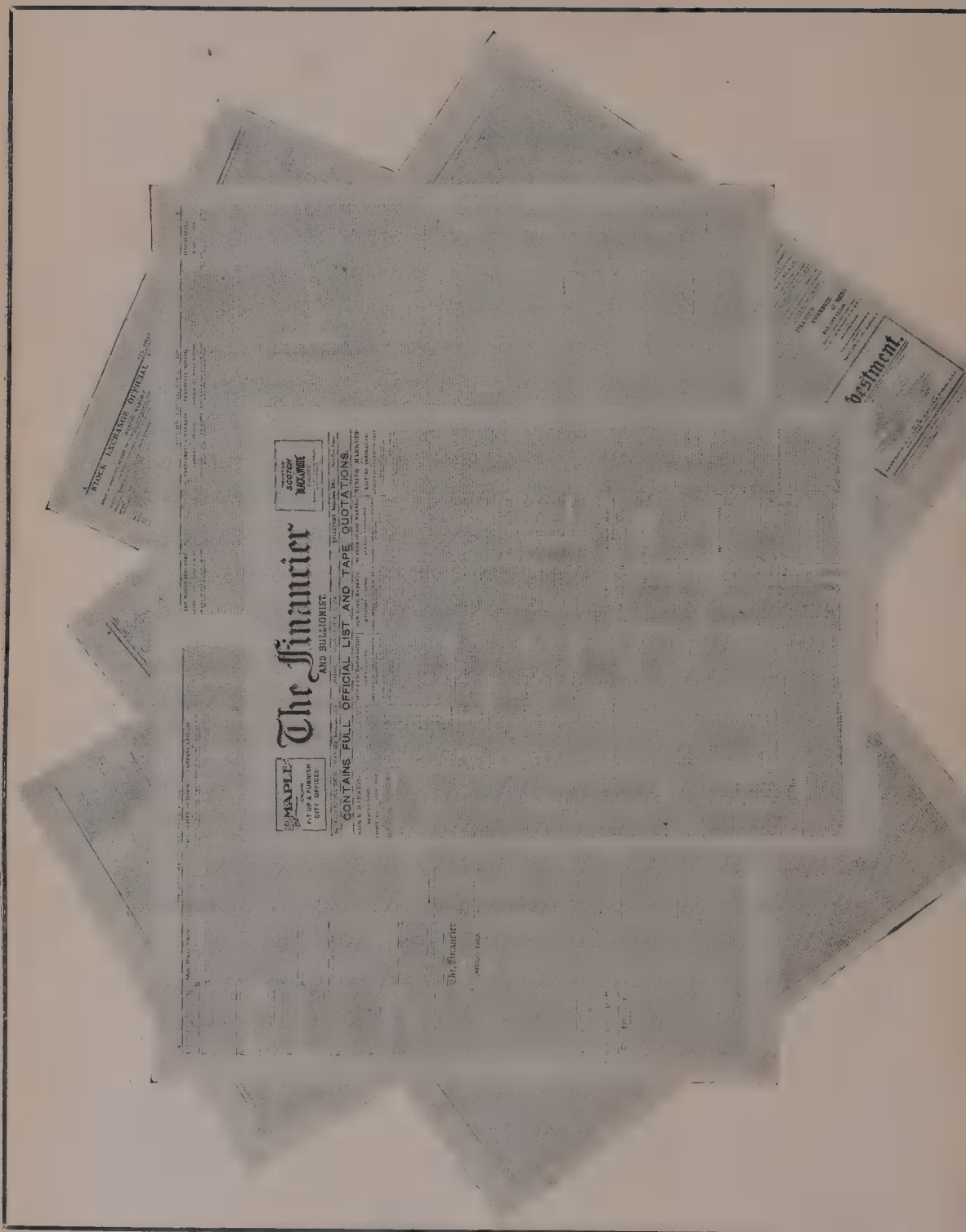
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